

SOLAR ECLIPSE NEWSLETTER

SUBSCRIBING TO THE SOLAR ECLIPSE MAILING LIST

**THE SOLAR ECLIPSE
MAILING LIST IS MAINTAINED BY THE LIST
OWNER PATRICK POITEVIN AND WITH THE SUPPORT OF JAN VAN GESTEL**

HOW TO SUBSCRIBE:

**IN THE BODY OF THE
MESSAGE TO
listserv@Aula.com SUB-
SCRIBE SOLARECLIPSES
name, country.**

The Solar Eclipse Mailing List

The Solar Eclipse Mailing List (SEML) is an electronic newsgroup dedicated to Solar Eclipses. Published by eclipse chaser Patrick Poitevin (patrick_poitevin@hotmail.com), it is a forum for discussing anything and everything about eclipses.

Thanks to the voluntary efforts of Jan Van Gestel of Geel, Belgium, the Solar Eclipse Mailing List (listserv) has been in operation since 10 December 1997. This is the first mailing list devoted solely to topic of solar eclipses on the internet.

You can send an e-mail message to the list server solareclipses@Aula.com, which will then forward your e-mail to all the subscribers on the list. Likewise, you'll receive email messages that other subscribers send to the listserv. Only subscribers can send messages.

The sole Newsletter dedicated to Solar Eclipses

Dear SENL readers,

June 2002 and most of us must be ready and packed for the annular solar eclipse. The majority travel to Mexico. Though, our friend Wasyl Moszowski from Belgium left end may for Sagihe Talaud in Sulawesi. He will observe the sunrise annular eclipse on his birthday, 11 June. He observed his first eclipse as well on his birthday, and as well in the same continent, Indonesia, 11 June 1983. We wish Wasyl all the best.

Congratulations to Fred Espenak for his front page picture of Sky and Telescope in the June issue. It took Fred ages to get the front page. It is well deserved. Besides the contribution of Jay Anderson and Fred Espenak, there are numerous solar eclipse contributions in the same magazine.

We also like to wish Vic Winter a good health and a quick recover of the stroke he had. Ken Phillips, from England, accepted a fellowship at Goddard Space Flight Center and we want to congratulate him with his new position.

In the meanwhile we would recommend

Lunar Eclipse 09 January 2001 by Joanne



**Michael and Laura "in" Star Wars NY
31 December 2000**

you visit our activities on our web-pages <http://www.j.w.edmonds.btinternet.co.uk> where you find information on the next solar eclipse conferences. There are numerous links to all future solar eclipses. The pages are still not finished and there will be additional data shortly. The first speakers for Totality Day 2003 have been registered. We hope to see you all in the Open University of Milton Keynes (UK) on Saturday 8 February 2003. Maybe you can combine with Astrofest in London that weekend?

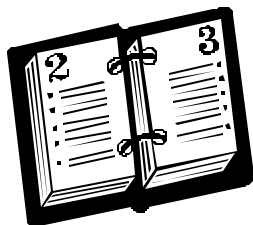
For those Sifi freaks, we suppose you all are happy with the new Star Wars movie.

We wish you all the best for the annular eclipse and we hope to receive many contribution for the next SENL.

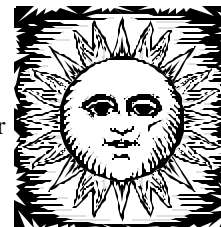
Best regards,

Patrick and Joanne

SECalendar



JUNE 2002



Please find herewith the SECalendar for June. If you have comments, remarks or additional information, please drop me a mail at patrick_poitevin@hotmail.com.

If you want to see the SECalendar in its completeness, see:
<http://www.j.w.edmonds.btinternet.co.uk>

June 03, 1239 "The sun was obscured on Friday at the 6 th hour of the day, and it lasted for a while between the 6 th and 9 th hours and it lost all its strength and there was as though night. There appeared many stars, and then the Sun grew bright again of its own accord, but for a long time it did not regain the strength that it usually has." Ref. *Anales Toledanos Segundos*, FRS 97.

June 03, 1239 "while I was in the city of Arezzo, where I was born, and in which I am writing this book, in our monastery, a building which is situated towards the end of the fifth latitude zone, whose latitude from the equator is 42 and a quarter degrees, and whose westerly longitude is 32 and a third, one Friday, at the 6 th hour of the day, when the Sun was 20 deg in Gemini and the weather was calm and clear, the sky began to turn yellow and I saw the whole body of the Sun covered step by step and it became night. I saw Mercury close to the Sun, and all the animals and birds were terrified; and the wild beasts could easily be caught. There were some people who caught birds and animals, because they were bewildered. I saw the Sun entirely covered for the space of time in which a man could walk fully 250 paces. The air and the ground began to become cold; and it (the Sun) began to be covered and uncovered from the west." Ref. *Ristoro d'Arezzo, Della composizione del mondo*, FRS 97. Many other cronics could be find in Italy (*Anales Caesenates* and *Storie Fiorentina*, IV and *Archivo de Duomo di Sienna*), Portugal (*Chronicon Conimbricense*, III).

June 03, 1239 From Montpellier, France; Zurita, *Anales de la Corona de Aragon*: "The King (James the Conqueror) entered the city of Montpellier on Thursday the 2 nd of June of the year 1239; and on the next day, Friday, between midday and the ninth hour, the King writes that the Sun was eclipsed in a way people did not remember ever having seen before, because it was entirely covered by the Moon and the day grew so dark that one could see stars in the sky." Ref FRS 97 page 400.



June 03, 1239 From Split, Croatia: (Thomae *Historia Pontificum Salonitanorum et Spalatinorum*): "At the same time, AD 1239 on the third day from the beginning of the month of June, a wonderful and terrible eclipse of the Sun occurred , for the entire Sun was obscured, and the whole of the clear sky was in darkness. Also stars appeared in the sky as if during the night, and a certain greater star shone beside the Sun on the western side. And such great fear overtook everyone, that just like madmen they ran about to and from shrieking, thinking that the end of the world had come. However, it was a Friday, the 30th day of the (lunar) month. And although the same defection of the Sun appeared throughout the whole of Europe, it was not however spoken of in Asia and Africa." Ref. FRS 97, pages 401.

June 03, 1925 Death Camille Nicolas Flammarion in Juvsy sur Orge. He was born on February 26, 1842 in Montigny le Roi in Hauter Marne. Ref. *The Bibliographical Dictionary of Scientists*, edited by David Abbott, 1994.

June 04, 1769 Six hours after the transit of Venus there was a total solar eclipse. This solar eclipse was total in Scandinavia. Venus should have been projected in the corona of the sun. The planet was about one solar diameter from the edge of the sun. The next corona transit of Venus will be June 6, 2263. This is just a corona transit and not a transit of the planet over the solar disc. Venus is about one solar radii from the eclipsed suns disc. For a Mercury corona transit you have to wait till 3269 and 3853. (ref. ENB 09/98)

June 07, 1434 In the Java Sea, near longitude 115 degrees 45 arcminutes East, latitude 5 degrees 15 arc minutes South, four total solar eclipses were visible in a time span of 13.7 years: on 7 June 1434, 30 September 1437, 23 January 1441 and 5 March 1448. Ref. JM 9/99.

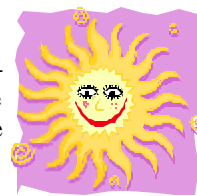
June 07, 1826 Joseph von Fraunhofer died in Munich. Born in Straubing, Bavaria on March 06, 1787. The 11th and youngest child of a poor glazier. He contracted tuberculosis in 1825 and died in Munich on 7 June of the following year. Ref. *The Bibliographical*

(Continued on page 3)

SECalendar

Dictionary of Scientists, edited by David Abbott, 1994.

June 08, 1937 At the total solar eclipse of 8 June 1937, Charles H. Smiley, Brown university, procured small-scale photographs, with a 4 inch f/1 Schmidt camera at an altitude of 14,000 feet, that showed a double wedge of light extending along the ecliptic from the sun. The almost vertical band of light may be identified with the zodiacal light. (ref. SaT 1/2-1938, SaT 3/1954)



June 10, 2002 The path of the 10 June 2002 annular eclipse crosses its successive Saros eclipse of 21 June 2020 one Saros later. Ref. FE Canon.

June 10, 2932 Jupiter will be occulted by eclipsed Moon on 10th of June, 2932 (!!!) Mars - almost 500 years earlier: on 26th of April, 2488 and Saturn - "only" in 3.5 centuries, on 26th of July, 2344! Thus, although it will finally happen, no one presently living on Earth will be able to see it with his/her own eyes. Even more, no occultations of Regulus by the eclipsed Moon is expected before 22nd of February, 2445! Ref. "Mathematical Astronomy Morsels" (Willmann- Bell, ed., 1997), by Jean Meeus.



June 11, 1983 Total Solar Eclipse in Indonesia. The Islamic month Ramadan started the same day of the eclipse. Mathematically the Ramadan should start the day after. The Islamic month is after each 12 lunations. Exact date for June 11 1983 is 29 Cha'ban (month 8) 1403 which is just before Ramadan. The last eclipse which was during the month Ramadan was the partial solar eclipse of July 20, 1982 (28 Ramadan (month 9) 1402). The last total solar eclipse was July 31, 1981 (29 Ramadan (month 9) 1401) while the last annular eclipse on August 10, 1980 (28 Ramadan (month 9) 1400). The next solar eclipse in the month Ramadan will be the partial solar eclipse of December 25, 2000 (28 Ramadan (month 9) 1421), which was the last Christmas Eclipse. The next annular eclipse will be on December 14, 2001 (28 Ramadan (month 9) 1422) and the next total solar eclipse on December 4, 2002 (29 Ramadan (month 9) 1423). Of course, the total solar eclipse of November 23, 2003 on the Antarctic,

and also in the month Ramadan, will not reflect live of the Penguins... (ref. ENB 6+7/98)

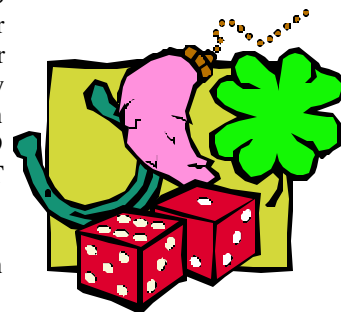
June 12, 1843 Birth of David Gill in Aberdeen, Scottish astronomer whose precision and patience using old instruments brought him renown before he achieved even greater fame for his pincer work in the use of photography to catalogue stars. In 1872 Gill went on a 6 year expedition to Mauritius, with Lord Lindsay and others, in order to measure the distance of the Sun and other related constants particularly during the 1874 transit of Venus. He measured solar parallax by considering the near approach of Mars on a private expedition, sponsored by the Royal Astronomical Society, on Assension Island in 1877. He retired in 1906, for health reasons, and lived in London until he died of pneumonia on 24 January 1914. Ref. The Bibliographical Dictionary of Scientists, edited by David Abbott, 1994.

June 13, 1760 Last Total Solar Eclipse on a Friday 13 th. Last solar eclipse was a partial in 1974. The next solar eclipse on a Friday 13 th is in July 2018, also a partial solar eclipse. There are 24 solar eclipses on a Friday the 13 th between 0 and 3000. Of which 13 partial, 9 annular and 2 total solar eclipses. The most odd is the one of 13.03.313, which was an annular eclipse. June 13, 2132 is the next Total Solar Eclipse on a Friday 13 th. June 14, 1938 Death of William Wallace Campbell (1862-1938), American astronomer. Had many eclipse expeditions. The Royal Society also mentions 14 or 15 June 1938. (ref. DD 6/98, Rc 1999)

June 14, 2151 Next total solar eclipse with possibility of seeing Aurora Borealis. Up to now no aurora has been seen during a total solar eclipse. There have been attempts before during solar eclipses of 29 June 1927, 30 June 1954, 20 July 1963, 10 July 1972 and , 22 July 1990. The solar eclipses need to be close near the aurora zone, the sun altitude must be favorable, solar activity preferred near maximum and the angle of the eclipse track to the zone not too large. Between 1950 and 2000, there are 9 eclipses of which 4 favorites (see above). The recent eclipse of 9 March 1997 was not that favorable. The next after this of 2151 will be June 4 2160. (ref. SaT 3/1954 and 12/1953)

June 15, -0762 (763 BC) "On that day, says the Lord God, I will make the sun go down at noon and darken the earth in broad daylight." Ref. Amos, Chapter 8, verse 9 (Old Testament)

June 15, -0762 (763 BC) Assyria: "Insurrection in the City of Ashur. In the month of 'Sivan', the Sun was eclipsed..." Ref. The



(Continued on page 4)

SECalendar

Assyrian Chronicles, FRS 97.

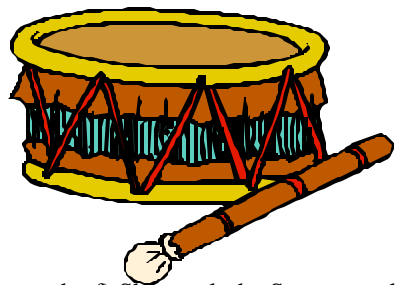
June 16, 0364 Four minutes of totality for those in the north of Scotland. This ranked as the 11th longest British total eclipse in the period 1 - 3000AD, and had a high altitude of 53°. The eclipse track traveled across Norway, Sweden, Latvia, Lithuania and Russia. (ref. SW - UK Eclipses)

June 16, 0885 The Chronicon Scotorum states "An eclipse of the Sun; and stars were seen in the heavens." is the 3rd longest British total eclipse in the period 1 - 3000AD at nearly 5 minutes. It had a 300-km wide track, which meant that virtually all of Scotland would have seen this eclipse. The eclipse track traveled across Norway, Sweden, Finland and northern Russia. (ref. SW - UK eclipses)

June 16, 0885 The maximum theoretical length for a British total eclipse is 5.5 minutes. The eclipse of June 16, 885 lasted for almost 5 minutes and the same will be true for the Scottish total eclipse of 22 July 2381

June 16, 1406 The last total solar eclipse in Belgium before 1999 (and current country borders) was June 17, 1433. The total solar eclipse of June 16, 1406 was the one before in Belgium.

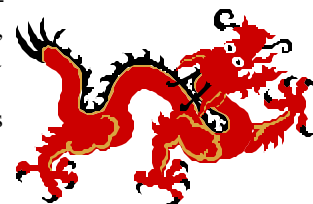
June 16, 1806 José Joaquín de Ferrer (Spain), observing at Kinderhook, New York, gives the name corona to the glow of the faint outer atmosphere of the Sun seen during a total eclipse; he proposes that the corona must belong to the Sun, not the Moon, because of its great size. Ferrer also states, that during the total eclipse of 1806, the irregularities of the moon's surface were plainly discernible. (ref. History of Physical Astronomy)



June 16, 1806 Tecumseh's Eclipse. The Shawnee chief Tecumseh realized that the only hope for the various tribes in east and central North America was to join together. He was assisted by his brother-Tenskwatawa - a "prophet" who called for a rejection of the "white ways" and a return to traditional values. Tenskwatawa was ready for Tecumseh had learned from explorers that a total Solar Eclipse was to occur. Tecumseh ordered the Great Spirit to release the sun. Ref.: "An Account of 1806, June 16 eclipse from a sorrow in our heart: A life of Tecumseh" by Allan W. Eckert.

June 17, 1433 From Al-'Asqalani, Inba'al-Ghumr bi 'Bna al-'Umr: "On the 28th of (the month of) Shawwal, the Sun was eclipsed after the 'Asr (afternoon) Prayer and continued until the time of sunset. It cleared up after the conclusion of the eclipse prayer, which I led in the Great Mosque. Then the sun set and we prayed the Maghrib (sunset) Prayer in the mosque. When the eclipse prayer was concluded, I sent a witness to ascend the minaret of the mosque to see if the Sun had cleared. He returned, saying that it had cleared completely." Ref. FRS 97, pages 446.

June 17, 1433 From al -Maqrizi, Islamic: "On Wednesday the 28th of Shawwal, the Sun was eclipsed by about two thirds in the sign of Cancer more than one hour after the afternoon prayer. The eclipse cleared at sunset. During the eclipse there was darkness and some stars appeared ... On Friday night the 14th of Dhu I-Qu'da, most of the Moon was eclipsed. It rose eclipsed from the eastern horizon. The eclipse cleared in the time of the nightfall prayer. This is rarity - the occurrence of a lunar eclipse 15 days after a solar eclipse." The solar eclipse was on 17 June 1433, while the lunar eclipse on 3 July 1433. Ref. Encyclopedia Britannica. June 17, 1433 In Scotland known as the "Black Hour". Although covering all of Scotland, this eclipse went well into northeast England down to north Yorkshire. Even though the eclipse was nearly four and a half minutes on the center line (the 6th longest British total eclipse in the period 1 - 3000AD), it must have still been over three minutes in Yorkshire. (ref. SW -UK Eclipse's). The reference about the Black Hour account was in The Story of Eclipses by George F. Chambers, 1899, which refers to the Phil. Trans, vol. xl p. 194 of 1737. But following book mentioned the eclipse in Scotland as "Black Friday": Total Eclipses of the Sun by Mabel Loomis Todd, 1894 which refers to History of Physical Astronomy, London, 1852, p. 365. In Celle, near Hanover in Germany a chronic says: On the 17th June of the year 1433 there have been a terrible solar eclipse on the 5th degree of Cancer. The sun passed 4 or 5 degrees of the solstice point. The total sun was eclipsed, covered by the Moon, in the tail of Draco. This eclipse was also the Total Solar Eclipse in Belgium before 1999.



SECalendar

June 17, 1906 Thomas George Cowling birth. Is a British applied mathematician and physicist who has contributed significantly to modern research into stellar energy with special reference to the sun. Ref. The Bibliographical Dictionary of Scientists, edited by David Abbott, 1994.

June 18, 0931 The area that was to become Disney World in Orlando, Florida experienced almost 3 minutes of totality just before noon. The moon's shadow also passed over that same area in 1050, 1259, 1325, 1600, 1625 and 1918 although none of those events were on June 18. Disney World's next eclipse will be August 12, 2045 with over 6 minutes of totality. "You did not have anything for June 18", David Balch 5/01

June 19, -0548 (549 BC) "Duke Hsiang, 24 year, 7 th month, day chia-tzu, the first day of the Moon. The Sun was eclipsed and it was total." Ref. Ch'un-ch'iu, book IX (Chinese), FRS 97.

June 20, 0540 "the sun darkened on June 20 th, and the stars showed fully nearly half an hour past nine in the morning." Ref. The Anglo-Saxon Chronicles and collated by Anne savage, CLB Publishing Ltd.

June 20, 0540 Totality at following 8000 meters summits: K2 (Chogori), Nanga Parbat, Gasherbrum I (Hidden Peak K5), Broad Peak (K3) and Gasherbrum II (K4). The total solar eclipse of 20 June 1582 is only total at K2. The next totality at K2 is on 8 March 2733. Ref PA 6/00.



June 20, 1061 "On Wednesday, when two nights remained to the completion of the month Jumada, two hours after daybreak, the sun was eclipsed totally. There was darkness and the birds fell whilst flying. The astrologers claimed that one-sixth of the Sun should have remained (uneclipsed) but nothing of it did so. The Sun reappeared after four hours and a fraction. The eclipse was not in the whole of the Sun in places other than Baghdad and its provinces. Ref. Ibn al-Jawzi, Islamic, encyclopedia Britannica.

June 20, 1955 In a used bookfair Eli Maor found a slim book entitled, "Has the Earth a Ring Around It?" The author, one Frank G. Back, was a friend of Einstein and once raised with him the question, why does the moon look so dark during a TSE – or conversely, why does the background sky look so bright? Einstein encouraged him to do some spectroscopic measurements at a future eclipse, which the author did at the June 20, 1955 eclipse over the Philippines, the longest in many years. He did his experiments from within the canopy of a T-33 training jet that chased the Moon's shadow at 600 mph, thus prolonging the duration from 7 min. 8.6 sec. to 12 min. 15 sec. As far as I know, this - and not the famous Concord flight of 1973 - must have been the first successful attempt to chase the Moon's shadow from an airplane with the expressed purpose of prolonging the eclipse. The author did confirm that the background sky is much brighter than it "should" be theoretically, and he tried to explain this by hypothesizing that a ring of diffuse particles is orbiting the Earth beyond the Moon's orbit! Evan Zucker (6/01 SEML) remarks that the T-33 maximum speed is from 525 to 543 mph.

June 20, 1955 Longest total solar eclipse is lasting 7m 31s but has never been observed. But the total solar eclipse of 20 June 1955 lasted 7m 8s in the Philippines.

June 21, 0019 The millennium opened with a superb mid -morning eclipse of over 4 minutes duration. It ranks 8th longest British total eclipse in the period 1-3000AD, and holds the record for the eclipse with highest altitude at 59° elevation. This eclipse is broadly similar in track and time of day to the forthcoming August 1999 European Eclipse passing through central Europe and across the northern Black Sea. (ref. SW-UK Solar Eclipses)



June 21, 0122 Joint 3rd shortest British Total Solar Eclipse in the period 1-3000AD, this 75 km wide eclipse occurred late on midsummer's day, and would have been nonetheless spectacular for 20 seconds for the inhabitants of the Faroe Islands. However it could have passed unnoticed by most of the UK, although as totality passed between the Shetland and Orkney Islands their inhabitants must have noticed a significant darkening. (ref. SW - UK Eclipses)

(Continued on page 6)

SECalendar

June 21, 0400 An eclipse of the Sun on 21 st June, recorded by Cicero. "On the nones of June the Sun was covered by the Moon and night." Ref. BAAJ 06/00, Encyclopedia Britannica. Gerry Foley remarks that Cicero's date is to be 106 – 65 BC (5/01 SEML)

June 21, 1629 The Chinese were able to predict eclipses, but not well. Imperial astronomers, who had failed to anticipate an eclipse in 1610, predicted a Solar Eclipse for this date. Jesuit missionaries, however, insisted that the prediction was an hour early and that rather than lingering for 2 hours the eclipse would last only 2 minutes. The Jesuits were correct. As a result, the emperor ordered that the Chinese calendar be revised.

June 21, 1874 Death of Anders Jons Angstrom (1814-1874), astronomer and physicist of Sweden. Famous for spectroscopy and spectra analysis. He found a relation between the Fraunhofer lines in the Solar spectra and the discontinuous spectra of hot gases. He detected several elements in the Sun's atmosphere. He published in 1868 the atlas of the solar spectra. (ref. DD 6/98, Rc 1999)

June 22, 1633 Galileo Galilei appears for the Inquisition because he defends the heliocentric world of Copernicus. (ref. DD 6/98)



June 23, 1191 "In the month of June, the Vigil of the Nativity of St John the Baptist (June 23), the 9 th day before the Kalends of July, on the 27 th day of the Moon, at the 9 th hour of the day, the Sun was eclipsed and it lasted for three hours; the Sun was so obscured that the darkness arose over the Earth and stars appeared in the sky. And when the eclipse withdrew, the Sun returned to its original beauty." This was an annular solar eclipse. Ref. Stubbs, Gesta Regis Henrici II et Ricardi (1867), FRS 97.

June 24, 1778 The first total solar eclipse recorded in the United States when the track passed from Lower California to New England. According to Thomas Jefferson, the eclipse was clouded out in Virginia. This is considered the first total solar eclipse in British Colonies and which lasted four minutes over the middle Atlantic and New England States. (ref. +ENB012)

June 24, 1940 Death of Alfred Fowler (1868-1940), British astronomer and physicist. Studied spectra of the Sun. (ref. DD 6/98, Rc 1999)

June 25, 1275 "Te-yu reign period, 1 st year, month VI, day keng-tzu, the first day of the month. The Sun was eclipsed; it was total. The sky and Earth were in darkness. People could not be distinguished within a foot. The chickens and ducks returned to roost. (It lasted) from the hour shu (9 – 11 h) to the hour wu (11 – 13 h); then it regained its brightness." And "The Sun was eclipsed; it was total. Stars were seen. The chickens and ducks all returned to roost. In the following year the Sung dynasty was extinguished." Ref. From Sung-shih, FRS 97, pages 257, 258.

June 26, 1424 Of the 20 total eclipses to visit the Orkneys and Shetland Islands in the period 1 - 3000AD it was the 13th longest in the whole of the UK at 3 minutes 56 seconds it was surpassed in Orkney by those of 364, 885, 1185, 1433, 2681. The eclipse track traveled across Denmark, Germany, Poland, Ukraine, Moldavia, and the Black Sea. (ref. SW - UK eclipses)

June 26, 1824 Birth of William Thompson (Kelvin), British physicist. Known for his absolute temperature scale. (ref. DD 6/98)

June 26, 1883 Death of Sir Edward Sabine (1788-1883). Mentioned a correlation between sunspots and magnetic disturbance on earth. (Ref. Rc 1999).

June 28, 1451 Sort of the American version of the Medes and Lydians. The Seneca and Mohawk tribes were preparing for war when a total solar eclipse swept over both their camps late in the afternoon of this early summer day. Both immediately sued for peace. (ref. DB 6/97: "A star Called the Sun" by George Gamow)

(Continued on page 7)

SECalendar

June 29, 0512 Totality at following 8000 meters summits: K2 (Chogori), Gasherbrum I (Hidden Peak - K5), Broad Peak (Falchen Kangri - K3) and Gasherbrum II (K4). The same 8000 meter summits have totality on 11 August 1124 and 13 November 1331. Ref PA 6/00



June 29, 1818 Birth of Italian astronomer Angelo Secchi (1818-1878). Photographed eclipse of 18 July 1860, studied sun spots. (ref. DD 6/98, Rc 1999)

June 29, 1868 George Ellery Hale is born in Chicago. Principally he was an astrophysicist and he distinguished himself in the study of solar spectra and sunspots. He developed a number of important instruments for the study of solar and stellar spectra, including the spectroheliograph and the spectraheliometer. He died in Pasadena on 21 February 1938, but 10 years later, his greatest dream, the 200 inch reflecting telescope on Mount Palomar was completed. Ref. The Bibliographical Dictionary of Scientists, edited by David Abbott, 1994.

June 29, 1927 From Dorothy Sabin near Clitheroe, England: "I was so enthralled with this celestial shadow tearing across the world that I almost forgot everything else. Hurriedly, I looked above my head. The sky was dark blue, flecked with mother of pearl clouds, wonderfully luminous. I turned east, and there in the sky, between patches of bright cloud was a black disc entirely surrounded by living flames. I did not notice Bailey's Beads, neither did I see the corona. I had not eyes for anything save those leaping, glowing flames. It seemed hardly more than a second or two that they were visible, for the Moon slipped by, and a tiny slit of Sun appeared; instantly it was broad daylight once more. The eclipse was over. Down the hillside we scrambled, our thoughts and minds full of the great sight we had seen. It was not till we see the morning papers that we learned how disappointed thousands of people had been." Ref. Anow, vol. 2, nr 2.

June 29, 1927 Gellivara 1073: Minor planet discovered September 14, 1923 by Johann Palisa at Vienna. Named for the small town Gällivare in Swedish Lapland where in the year 1927 astronomers from several countries observed the Total Solar Eclipse of 1927 June 29. Named by the astronomer J. Rheden and endorsed by Anna Palisa. (ref. VK 6/97)

June 29, 1927 If you really speak about England, then the total solar eclipse of 29 June 1927 was the latest indeed. This short eclipse has not been observed by many people. Weather conditions were bad. The centerline was in the north of Wales, Preston and north England.

June 29, 1970 Contact lost with first German satellite Azur. Studied interaction between solarwind and earth's atmosphere. (ref. DD 6/98)

June 29, 1972 Launch of Russian satellite Prognoz 2. Studied sun and roentgen.

June 30, 1535 In "Name in the Window" Margaret Demorest proposes that Shakespeare's sonnets, nos 1-109, incorporate a calendar for the years 1501-1609, each sonnet corresponding to a year. Peter Nockolds has investigated the 3 appearances of the word Eclipse. "Clouds and eclipses stain both Moone and Stunne, And loathsome canker lives in sweetest bud." This Solar Eclipse was not visible from London. (ref. ENB012)



June 30, 1954 Felix Verbelen: "mijn" eerste, bewust waargenomen zonsverduistering deze was van 30 juni 1954. Het werd voor mij een onvergetelijke gebeurtenis. Ik was toen een schoolknaap van pas 9 jaar en alhoewel het een woensdag was werd er toen ook in de namiddag naar school gegaan...". First solar eclipse of Felix Verbelen. He was 9 years old and remembers the eclipse.

June 30, 1954 The last total solar eclipse in Britain was 30 June 1954. The about 3 minutes totality was visible in the Faroes and the southern line was crossing the northernmost Shetland. Many people in England do remember this eclipse and is mistaken as total for those, which saw a large partial eclipse. The eclipse track traveled across Norway, Sweden, Lithuania, Byelorussia, and Russia.

(Continued on page 8)

SECalendar



June 30, 1954 Total Solar Eclipse in Scandinavia. Jupiter was invisible and behind the solar disc and which is a very rare phenomenon. Sun, Moon, Earth and Jupiter were on one line. Occultation of Jupiter by the Sun during the complete time of the eclipse. Disappearance of Jupiter June 30, 1954 at 9h03m and reappearance on July 1, 1954 at 2h15m. First contact of the eclipse was at 10h09m and fourth contact at 15h03m. (ref. H&D 1953, JM)

June 30, 1954 Just before sunrise on June 30, astronomers at stations in Nebraska and Colorado attempted the first observation of zodiacal light made while the sun is in total eclipse below the horizon. The eerie phenomenon was that time belived to be reflected from ionic or fine dust particles, National Geographic Magazine June 1954 wrote page 869. Scientists sponsored by the National Geographic Society, and leaded by Dr. George Van Biesbroeck of the University of Chicago's Yerkes Observatory, would sweep the horizon with fast photoelectric scanners which they hoped they would catch the elusive zodiacal light during the eclipse darkened dawn.

June 30, 1973 During the eclipse in Kenya, an object has been photographed. It was detected with several cameras and on more photographs. Till now, the object has not been classified, and it has been called the Dossin-Heck. During the same eclipse Henry C. Courten (New York) and E. M. Pittich (Tzech Republic) did semilar experiments to detect sun-grazing comets.

June 30, 1973 Observation of rainbow during total solar eclipse. Observation from a chartered Chessna plane and at an elevation of 11500 feet: About three minutes before totality, a rainbow was seen to the west. The rainbow was very easy to see and the colors were quite brilliant. After totality a sundog (mock sun) was seen. These were very interesting phenomena. From the account The June 30, 1973 Total Solar Eclipse From Suriname, South America by Michael Reynolds in ref. Solar and Lunar Eclipse Observations 1943 - 1993 edited by Francis Graham (1995)

June 30, 1973 Roger Tuthill and Harvard astronomer Donald Menzel received a Legion of Merit award from the president of Mauritania for educating the local population about the eclipse. (ref. SaT 12/99).

June 30, 1973 Scientists use a Concorde supersonic passenger jet flying 1250 miles (2000 km) an hour over Africa to extend the duration of solar eclipse totality to 74 minutes, 10 times longer than can be observed from the ground. The Moon's shadow moves over the Earth at over 3000 km/h. The white corona was studied on board of the Concorde 001. (ref. L Astronomie SAF, 4/1975 p 149)

June 30, 1973 Several teams of scientists studied the reactions of people in Africa and South America were surprised to discover the similarity of traditions in places so far apart.



June 30, 1973 Picture of Moon next to eclipsed sun in National Geographic, page 469, October 1974: Earth's Lunar companion passes almost before the sun on June 30, 1973, as seen by a groundcontrolled camera while Skylab was unmanned. Skylab's position here makes the bodies appear out of alignment.

Best regards, Patrick



SEDates



TD2003 - TOTALITY DAY 2003

8 February 2003, Open University, Milton Keynes UK

In continuation of the De Duistere Dag (The Dark Day), which we organized in Belgium since 1995, and the last issue of Totality Day 2001, held in Milton Keynes UK, we want to introduce to you TOTALITY DAY 2003.

TOTALITY DAY is organized after each total solar eclipse. To give the participants the time to evaluate their data, TOTALITY DAY will be one or two months after a total solar eclipse. To avoid confusion with the Solar Eclipse Conference, Totality Day is a one-day meeting. Three main subjects will be lectured and the remaining time of the day will be completed with short lectures and presentations about the last total solar eclipse.

Totality Day 2003 will be on Saturday 8 February 2003 in the Berrill Lecture Theatre of the Open University of Milton Keynes, England. Doors open at 8h00, closing at 20h00. Lectures from 10h00 to 12h00 and from 14h00 to 18h00. At lunchtime, the attendees can bring a pack-lunch. However, we arranged some sandwiches for sale.

It will be possible to meet from Friday evening. No official solar eclipse activities, though, an informal meeting in Milton Keynes. Saturday night, after Totality Day 2003, as well. No official activity either, though, it is the intention to have dinner together.

The Open University is centrally located in England and has a wonderful theatre that can hold 300 participants. All technical facilities are available for the lectures. There will be large display areas, where everyone can present any interesting collections. This area is also dedicated for trade stands. If you want to present something about the 2002 or 2003 Total Solar Eclipse, present a poster, or want to trade anything related to solar eclipses, please let us know. Thanks to the Open University of Milton Keynes, more particularly Prof. Barrie Jones, attending TOTALITY DAY 2003 will only cost 3 English Pounds. It is necessary to make prior arrangements with us if you wish to make a presentation, lecture, or poster display.

TOTALITY DAY 2003 - (PRELIMINARY) PROGRAM

08h00 Doors open. Entrance Main Reception of Berrill Building (<http://www.open.ac.uk/>)

10h00 Opening TD2003 by Prof. Barrie W. Jones (England)

10h10

10h30

10h50 Break

11h20 Guest speaker

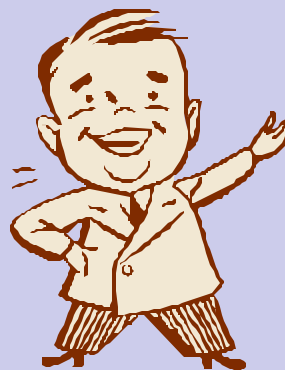
12h00 Lunch (Berrill Café is open for sandwiches, drinks or pack-lunch)

14h00

14h20

15h00 Guest speaker

15h20



SEDates

15h40 Break

16h10 Guest speaker

16h50

17h10

17h30 Posters

17h55 Closing TD2003 by Joanne Edmonds (England)

20h00 Doors closed

See TD2003 at Solar Eclipse WebPages <http://www.j.w.edmonds.btinternet.co.uk/>

If you want to give a lecture, have a poster, want to be updated or want to sponsor TD2003, please contact patrick_poitevin@hotmail.com or fill in the reply on the SE WebPages.

Best regards, Joanne and Patrick Poitevin

From : Sheridan Williams <sheridan@clock-tower.com>

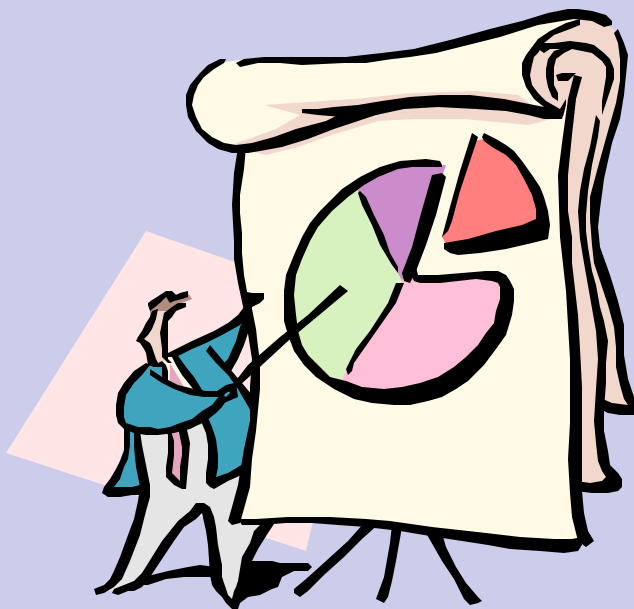
I'd like to do a piece on the 2003 annular in May at the conference.

I'm going to Scotland in a couple of weeks to check out suitable viewing locations.

Can you reserve me a slot? Best wishes, Sheridan

From : "Patrick Poitevin" <patrick_poitevin@hotmail.com>

Please note, for overseas eclipse enthusiasts, Astrofest is the same weekend. A nice combination for Saturday TD2003 and Astrofest on Sunday. PP



SETalk

Earliest sighting of Lunar shadow

From : Michael Gill <eclipsechaser@yahoo.com> To : Patrick Poitevin <Patrick_Poitevin@Hotmail.Com>, Derryl Barr <dbarr@nque.com> Date : Due, 30 Apr 2002

SENL 200204, Page 13 Earliest sighting of Lunar shadow:

Patrick/Derryl, The mention of 'Duillier' concerning the 1706 eclipse – I think this person may be Nicolás Fatio de Duillier, who was a contemporary of Isaac Newton and a Swiss-born mathematician living in London. He took Newton's side in the calculus dispute with Wilhelm Leibniz.

I have no references on the eclipses possibly observed by Duillier, but I suspect he is the person mentioned in Todd's 'Total Eclipses of the Sun'. Cheers, Michael

News Article (Cont. of SENL 200404)

From : Egan Mark <astrophoto@yahoo.com> To : SOLARECLIPSES@AULA.COM Date : Tue, 30 Apr 2002 12:34:31 -0700 (PDT)

> >The 2012 eclipse: That incredible! Nearly all of those parks and sites are relatively small. I never would have imagined they all would be within the path of annularity.

BTW-- my source for that info was Phil Harrington's book "Eclipse!" (I'm sure you've seen it....)

He lists most of these parks in his write-up about this eclipse; some of them I figured would be in the path, based upon the map that appears.

BTW, Hong Kong, Taipei, and Tokyo all lie within the path.

Re: photography at late afternoon eclipses: indeed, it's hard to expose the sunset and still get detail within the landscape. This is where a graduated neutral density filter helps. It darkens the sky (not too much, just enough to retain color and detail there) and still retains some detail in the landscape.

OTOH, it's sometimes nice when the landscape is underexposed so much, b/c then it appears as a silhouette. Which will be real nice for Monument Valley at this eclipse.

Or you could take two separate photos and combine them on the computer.

But that would be cheating. :-) Perhaps I'll see you in PV? later!

Delta T

From : Jean Meeus <JMeeus@compuserve.com> Date : Sat, 4 May 2002 13:50:17 -0400

On 2002 April 1 the quantity Delta T (the difference between Dynamical Time and Universal Time) was equal to 64.37 seconds. Jean Meeus



SETalk

Eclipses in Space

From : Michael Gill <eclipsechaser@yahoo.com> To : SOLARECLIPSES@AULA.COM Date : Wed, 1 May 2002

KCStarguy@aol.com wrote: After seeing Evans note, I decided to see what I could do with starry night pro.

Starry Night is an excellent program and I'm sure that many on the SEML use it and are familiar with its eclipse capabilities.

My favourite application for this tool is to simulate space missions that took place during solar eclipses.

Since the flight of Yuri Gagarin in 1961 there have been many manned space flights, some of them quite heroic.

Due to my interest in eclipses however, I have always been intrigued by the flight of Gemini XII in November 1966. On this flight, Jim Lovell and Buzz Aldrin became the first astronauts to fly into the lunar umbra enabling them to see a TSE from space.

Using Starry Night (<http://www.starrynight.com>) I recreated the circumstances of the Gemini XII flight. Although I was doing this for recreation rather than research, I found it a fascinating exercise.

Lift-off of Gemini XII occurred at 20:46:33UT on November 11th 1966. On November 12th there was a total solar eclipse visible across South America. This TSE was a member of Saros 142, the same Saros that produces the TSE on December 4th 2002.

First digression: note the similarity of this eclipse track across South America, with the one that took place 346 lunations later on November 3rd 1994 – I watched this latter eclipse from the vicinity of Huachacalla, Bolivia which was also close to the central line for the November 1966 TSE.

1966: <http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot1951/SE1966Nov12T.gif>

1994: <http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot1951/SE1994Nov03T.gif>

Second digression: Note how Saros 142 and Saros 133 again manage to produce another pair of TSEs with similar paths separated by 346 lunations...

2002: <http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot2001/SE2002Dec04T.gif>

2030: <http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot2001/SE2030Nov25T.gif>

Back to 1966 - I used the following TLE (Two-Line Element set) for Gemini XII and imported it into Starry Night...

```
1 02566U 66104 A 66316.34915197 .00000000 +00000-0
+00000-0 0 00011
2 02566 028.7842 174.6659 0051570 045.1927 315.2513
15.98407810000098
```

(For an explanation of these numbers go to the following web page: <http://www.satobs.org/element.html>)

Starry Night gives the user the option of 'observing' an event from a number of locations. Setting the simulator to a time of 12:30UT on November 12th 1966 and viewing Earth from the Sun, allows the user to watch as Gemini XII appears from the Earth's 'dark side' and then disappears behind the Moon (1st contact for the spacecraft). Gemini XII makes its reappearance (4th contact) as it heads northwards across the South American continent and the Atlantic towards North Africa.

Changing the viewing location from 'Sun' to 'Moon' and rerunning the simulation allows the user to zoom in towards the Earth and see both the satellite and the umbra as they make their way across the southern hemisphere on their 'collision' course. By greatly enlarging the scale, the simulation showed Gemini XII inside the umbra between 12:49:55UT and 12:49:58UT – a brief totality.

At this time, the Moon's shadow projected onto the Earth's surface (actually the Pacific Ocean) would be elliptically shaped with fairly high eccentricity. For Gemini XII in orbit, it intercepted the umbra higher up the shadow cone - a good fraction of an Earth radius on the Sunward side of the Fundamental Plane. Obviously, there would have been no distortion of the umbra due to the Earth's shape for the spacecraft.

Starry Night also allows you to take a virtual ride aboard Gemini XII and (virtually) view the Sun during the simulation. A neat feature.

The following things impressed me:

Firstly, despite uncertainties about atmospheric drag on low earth orbiting satellites, Starry Night (using the above TLE, which dates from the satellite's ninth revolution) confirmed that Lovell and Aldrin were inside the umbra. I would love to see a comparison of any timings obtained by NASA on this flight with those produced by Starry Night.

(Continued on page 13)

SETalk

Secondly, although we are now used to spacecraft docking with other spacecraft, this is done by space hardware flying in the same orbital plane. Starry Night shows clearly that Gemini XII was flying across the eclipse track which meant 'hitting' the lunar shadow cone (travelling at around 1 km/s w.r.t the Earth's centre) with a spacecraft travelling at ~7.7km/s. To a layman like me, that seems like an impressive bit of planning/flying/orbital manoeuvring.

I believe that the Gemini XII capsule used by Lovell and Aldrin is at the Goddard Space Flight Center Visitor Center.

For Starry Night users on the SEML, here are some suggestions for other eclipse 'case studies' that might be of interest. If you use 'copy and paste' to move the TLEs around, it is best to use a non-proportional font like courier to preserve the position and spacings of the digits.

1991 July 11th and Hubble Space Telescope - import the following TLE for the HST and set the simulation time and date to 17:00UT July 11th 1991:

```
1 20580U 90037 B 91192.64210606 .00005579 +00000-0
+57558-3 04805
2 20580 028.4719 285.8424 0005235 210.6015 149.4266
14.88105547065962
```

See what happens around 17:34UT.

1995 October 24th and 'Yohkoh' - after importing the TLE below, set the simulator to 02:00UT October 24th 1995 and run for two or three satellite revolutions.

```
1 21694U 91062 A 95296.93969734 .00001133 +00000-0
+10723-3 0 08455
2 21694 031.3464 137.4089 0166312 013.3864 347.1130
14.80282471224454
```

Some movies of this eclipse as seen from 'Yohkoh' can be downloaded from here (scroll down the page):

http://umbra.nascom.nasa.gov/eclipse/images/eclipse_images.html#19951024

1999 August 11th and 'Mir' - import the following TLE for 'Mir' and set the simulation time & date to 10:00UT August 11th 1999:

```
1 16609U 86017A 99223.47860351 .00018943 00000-0
12945-3 0 7541
2 16609 51.6599 60.4655 0005170 38.6336 321.5061
15.74833569770112
```

(Running this simulation allows you to see where 'Mir' was

when the famous 'umbra from orbit' picture was taken...

<http://antwrp.gsfc.nasa.gov/apod/ap990830.html>)

2001 December 14th - import the following TLE for 'Yohkoh' and set the simulation date & time to 20:30UT December 14th 2001 (bit of bad luck here - no scientific data has been returned by the satellite since this eclipse):

```
1 21694U 91062A 01348.80774306 .00028735 00000-0
17090-2 0 8523
2 21694 31.3480 270.3477 0111449 312.7192 46.4334
15.04979662558526
```

Michael Gill

Fireballs and Eclipses

From : dietmar.staps@wiesbaden.netsurf.de To : SOLAR-ECLIPSES@AULA.COM Date : Wed, 1 May 2002

The book "Total Eclipses" of Guillermier/Koutchmy Berlin 1999, p.135, shows one meteor of the beta Taurid stream during the 73 concorde eclipse flight. Dietmar Staps

From : Jean Marc Larivière <jeanmarc.lariviere@sympatico.ca>

For those who have the French version of this book the photograph can be found on page 152. Thought I'd save some of you the time it took me to locate it.

And for those who do not have the book a brief description : the photograph was taken out of one of the Concorde's side windows. It shows the wing, the horizon, the Moon's shadow on the ground and what is described as a small "cloud" produced by a beta Taurid meteor bursting in the atmosphere. In other words, it appears that a single photograph showing the eclipsed Sun and a meteor streaking across the sky remains to be made.

From : dietmar.staps@wiesbaden.netsurf.de

The Memoirs of the Royal Astr. Soc. Vol 41 (1879) p. 195-198 reports about "flashes of light on and near the moon's disk. References of observations of at least 5 eclipses from 1715 to 1869 are given.

For me the most plausible "meteor reports" given in the 4 pages article are:

-Observations of Arago (eclipse 1842) translated "two luminous meteors seen to cross the sky in a direction towards the sun" (Annuaire du Bureau de Longitudes 1846,

SETalk

p.364)

-The eclipse of August 1869, (around Perseid time) at 4 different reports at stations, objects the observers called meteors were seen. (Coast Survey Report for 1869 and other references)

A remarkable observation of an flash on the moon, with lasted only an instant, was reported for the eclipse 1715 by Louville. (Memoirs de l' Academie for 1715, p126,127) Modern observations confirm his result. Dietmar Staps

Solar Eclipse in Latina, Italy

From : "Patrick Poitevin" <patrick_poitevin@hotmail.com>

Some calculations for Latina in Italy.

If you talk about the last and next solar eclipse for your place, then the last was a partial solar eclipse on 11 August 1999. The magnitude was 0.828 there. The next one will be on 31 May 2003, though the altitude is under the horizon at maximum, but 4 degrees at the end. It is also a partial with magnitude 0.779. The next there after is on 3 October 2005. Unfortunately also a partial solar eclipse with a magnitude of 0.739.

The next central solar eclipse is on 1 April 2136 at 13h36 Universal Time. Though an annular. There after, there are again annular solar eclipses 27 September 2220, 27 June 2587 (at altitude 0). I do not mention of course, but you also have a few very large magnitude solar eclipses (0.999, which is nearly total) on 6 July 2187 and 19 March 2379.

But when is the next total solar eclipse? The next total solar eclipse will be on 7 May 2627 and there after on 7 June 2654, not that much after. Interesting period to live isn't it.

More interesting is the period between 2950 and 3000. There is an annular on 6 July 2950, an annular on 15 June 2960, only ten years after, a total on 7 June 2974 and again an annular on 3 March 2994. How about that.

**New Software Product for Eclipse Chasers!**

From : "Gordon" <to922@bellsouth.net> To : <solareclipses@Aula.com> Date : Tue, 7 May 2002

Dear Fellow Eclipse Chasers, For the past 9 months, beginning just after the June 2001 Total Eclipse, we have devoted a great deal of time, energy and money to develop a software product that will help us all enjoy solar eclipses and other eclipses of celestial bodies.

It is a complex timing program that will provide us with audible voice warnings up to the contact times to aid us in timing the photography of the event. The features are so many to discuss here so I ask that you visit the website for further information at www.eclipsesetimer.com. The website has extensive information as well as the complete help files. It will be for sale by download only. The price is not finalized yet. It should be available for download by the 3rd week of May. Due to the complexity of the program and the voice files, the download will be between 7 and 8 MB in size. Please monitor the website for further details. We are excited to present this software product, the first of its kind that we know of, designed specifically to assist eclipse chasers. We hope you will enjoy it and it will be helpful to you. Gordon & Angela, Eclipse Timer, LLC, www.eclipsesetimer.com

From : Pierre Arpin <parpin@videotron.ca>

Can you create the PC equivalent of Unbraphile that automate the picture taking of totality and let us enjoy it without any hassles ?

PS My browser (IE6) fails when I click on "Click For A Sample Warning" link

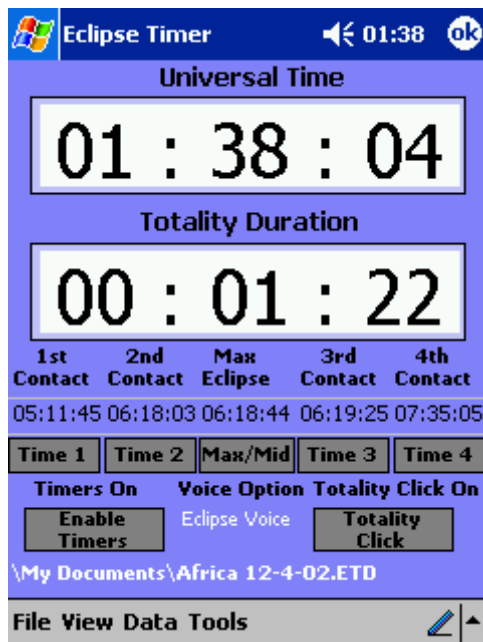
From : "Gordon" <to922@bellsouth.net>

Pierre, Thank you for visiting my site. And I love your site, it is wonderful.

Umbraphile is a wonderful concept and a wonderful program. It's actually fantastic. But I don't know if I would feel comfortable using it as my ONLY source of taking images of a totality, would you?? If I did use it, I would still be taking images on my own and Eclipse Timer would still be useful.

(Continued on page 15)

SETalk



Eclipse Timer, was designed to assist us eclipse chasers and photographers that want to use our hands and our instincts. It can help us with our timing if we are trying to run multiple cameras. It was designed to be portable and simple.

In terms of having difficulty opening the sample voice files from my website, I do not know what to tell you at this point. They are MP3 files and your browser and your operating system should automatically open up Windows Media Player and play the file. I have not had other complaints about this and it seems to be working fine. But I will look into it. Thanks, Gordon

From : "76630,2206" <76630.2206@compuserve.com>

Pierre: I suggest that you buy a Mac and for your windows applications, buy and use Virtual PC by Connectix. Run your graphics and umbraphile on the Mac side. The Mac has more integrity than the Windows boxes. And are cheaper, in comparison to the high-end PC's.

If Umbraphile can run on an I-book, use that in the field. A cheap G3 I-book may suffice, but I will defer to Glenn on that subject.

I would also use Umbraphile for aurorae: set up sequences of 15 second exposures on ISO 400 film for the bright ones. Keep the camera aimed at one area

of the sky, using a lens wide enough for the purpose. Then use the Mac's I-movie to make a movie of the images. --Robert B Slobins

From : "Jean-Paul GODARD" <jean-paul.godard@noos.fr>

I have to mention that "EclipseQc" was published as freeware in 1999 (Before TSE1999, Qc stands for QuickCam). It is able to manage any webcam as picture entry and provide different facilities between C1 & C2, C2 and C3, C3 and C4.

Pictures are recorded as AVI (film) so that you can get accelerated sequence of partial phase, real time for totality etc... It gives visual help for timing... May be still usefull with now 800x600 webcam !

Please visit <http://astroqc.free.fr>

From : "Gordon" <to922@bellsouth.net>

Hi everyone, Jean-Paul was nice enough to point out that he developed a timing device for QuickCams in 1999 and I was not aware of it. Thanks for pointing that out Jean-Paul. His device is quite different from Eclipse Timer however.

I would like to prevent any misunderstandings about the Eclipse Timer software. The program does not do any calculations for the contact times based on the geographic coordinates. The user must know this information and input the information into Eclipse Timer.

Eclipse Timer was not developed to be an automatic camera trigger and I don't want it to do that. In my view it is much more than that. It warns observers to monitor for the natural changes that occur during the initial partial phases. It gives audible voice countdowns to the contact times to get you prepared for your photography. When I was in Africa in a field with approximately 250 people, only about 10% were using fixed focal length telescopes for their photography. Most were using camera zoom lenses, so they could zoom in and out and



SETalk

also try to frame a shot of totality and Jupiter in the same image (as I did). Their goals did not seem to be to get 36 automatic shots of totality. I think automatic camera triggering is a good thing, but Eclipse Timer was not designed for that. Eclipse Timer was designed to be small, portable and not complex. It was designed so you don't have to wear 5 Timex watches on you arms, each programmed to the contact times and max eclipse. I consider it a complex, specific photographic aid timing device. Gordon www.eclipsesetimer.com

SENL May 2002 NOW ONLINE!

From : FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov> To : SOLARECLIPSES@AULA.COM, eclipse@hydra.carleton.ca Date : Thu, 9 May 2002 10:38:22 -0400

Joanne Poitevin has prepared a new issue of the SENL (Solar Eclipse Newsletter) for the month of May 2002. It was so big that she had to split it into two parts: Part A and Part B!

All issues are online in pdf format and can be accessed via the SENL index page of MrEclipse.com:

<http://www.mreclipse.com/SENL/SENLinde.htm>

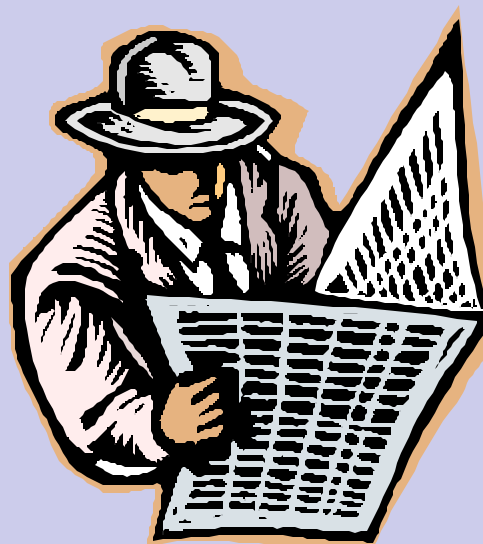
Other recent issues currently linked from the above page include:

SENL - July 2001 - Special A (1.2 MB pdf file*)
SENL - July 2001 - Special B (0.7 MB pdf file*)
SENL - July 2001 - Special C (0.7 MB pdf file*)
SENL - August 2001 - Part A (1.0 MB pdf file*)
SENL - August 2001 - Part B (0.6 MB pdf file*)
SENL - September 2001 - Part A (1.0 MB pdf file*)
SENL - September 2001 - Part B (1.0 MB pdf file*)
SENL - October 2001 (1.0 MB pdf file*)
SENL - November 2001 - Part A (0.7 MB pdf file*)
SENL - November 2001 - Part B (0.8 MB pdf file*)
SENL - December 2001 (1.3 MB pdf file*)

SENL - January 2002 - Part A (0.7 MB pdf file*)
SENL - January 2002 - Part B (1.3 MB pdf file*)
SENL - February 2002 (1.2 MB pdf file*)
SENL - March 2002 - Part A (0.7 MB pdf file*)
SENL - March 2002 - Part B (0.8 MB pdf file*)
SENL - April 2002 (1.1 MB pdf file*)
SENL - May 2002 - Part A (1.1 MB pdf file*)
SENL - May 2002 2 - Part B (0.6 MB pdf file*)

Note that all these files are in Adobe pdf format and can only be read with Adobe Acrobat Reader. This software is free and can be downloaded from Adobe's web site (<http://www.adobe.com/>).

As always, thanks for the hard work Joanne! - Fred Espenak



SETalk

Eclipse viewer solar filter material wanted

From : "F.Podmore" <podmore@science.uz.ac.zw> To : solareclipses@aula.com Date : Wed, 8 May 2002

Hello from Zimbabwe, where preparations are definitely underway for 4 Dec.

I have been approached by a local company who are already manufacturing eclipse viewers, using a combination of plastic film and aluminized film which both I and Ralph Chou have tested and found acceptable. But Mr Magauze really needs more...

Ages ago, long before the TSE last year, I was in contact with a Mr Les watson, somewhere in south Wales I think, who was offering filter material left over from the 1999 event. But I have lost his email address - can anyone help?

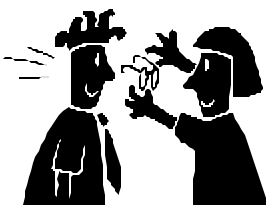
Or, does anyone know where any cheap but effective filter can be obtained? Of course the problems will be how to pay for it and how to get it here, but if we can at least locate a supplier or two that would be a help.

Thank you for any assistance (directly to me and off list preferably). Francis Podmore

From : "Mark" <rainbowsymphony@rainbowsymphony.com>

Francis, Nice to hear from you. We have a large inventory of CE certified solar viewing films for a reduced price. All have Ralph Chou's blessing. We have both aluminized, double laminated mylar and our black polymer which we designed specifically for a French company to meet French standards in 1999. This material is a little darker than our standard black polymer as per there request. We are treating this material and the price as a close-out item. The materials from Mr. Les Watson were probably ours as we did provide him with solar viewing films. Please let us know if you are interested and what format you will need it in for production.

You may want to put us in contact directly with the manufacturer of the viewers to work out any business arrangements and payment. Who would be paying for this...your organization or the manufacturer. We can figure out the best and cheapest way to get it to you. Please get back to me. We are supplying several other manufacturers with our films for Dec 4th eclipse. Sincerely, Mark S. Margolis

**Index SENL May 2002**

Please find herewith the Index of the May 2002 issue of the Solar Eclipse Newsletter (SENL). Beside the topic, the page number is listed:

.../...

See the latest SENL and also the complete SENL Index since November 1996 at <http://www.j.w.edmonds.btinternet.co.uk/>

The SENL will be soon on the WebPages of Fred Espenak/NASA. See

<http://sunearth.gsfc.nasa.gov/eclipse/SENL/> and the index at

<http://www.mreclipse.com/SENL/SENLinde.htm> with example: SENL0011.pdf

<http://sunearth.gsfc.nasa.gov/eclipse/SENL/SENL0011.pdf>

Comments and contributions are welcome at patrick_poitevin@hotmail.com

And ... keep those solar eclipse related messages coming ...

Best Regards, Patrick and Joanne

Eclipse stamp from Portugal

From : "Jean-Paul GODARD" <jean-paul.godard@noos.fr> To : <solARECLIPSES@AULA.COM> Date : Thu, 9 May 2002 13:51:00 +0200

Portugese post office publish a stamp with an Eclipse... <http://mseclipse.free.fr/timbres/timb00-plus.htm> (bottom of the page)

It is extracted from a serie dedicated to astronomical instruments. Is there a famous Eclipse related with one of the two items pictured on the stamps?



(Have a look to Martine's exhaustive [she tries to] stamp collection) Cordialement, Martine & Jean-Paul ("We met in Moon's S h a d o w ") tlouzeau@noos.fr jean-paul.godard@noos.fr

SETalk

Eclipse 2006

From : "Harvey Wasserman" <onsite@toast.net> To : <SOLARECLIPSES@AULA.COM> Date : Sat, 11 May 2002 08:05:50 -0400

Just wondering if anyone has done any plotting of the 2006 eclipse through Turkey? Are there any maps online? I know of Fred's table of co-ordinates, but was hoping for a more graphical version. Thanks, Harvey Wasserman

From : Pierre Arpin <parpin@videotron.ca>

You will find a lot of good maps for Africa instead on this site : http://www.eclipse.za.net/html/2006_maps.html

The last one shows a bit of Turkey.

I'm wondering if colonel Khadafi will allow entry to american and canadian on the Lybian territory for that eclipse.

From : "Govert Schilling" <mail@govertschilling.nl>

There's a global map at: <http://sunearth.gsfc.nasa.gov/eclipse/SEplot/SEplot2001/SE2006Mar29T.gif> and a Mercator-like world map at: <http://sunearth.gsfc.nasa.gov/eclipse/image/TSE97-20.gif>

Interestingly, the zone of totality at 29 March 2006 crosses the one of August 1999 in the Turkish town of Sivas. I went to Sivas in 1999 and plan to return in 2006... --Govert <http://www.govertschilling.nl>

From : rlavoie@total.net

Pierre, Canada has reestablished diplomatic relations with Lybia a few months ago, but I think that from a logistics point of view, Turkey will be easier to travel to and within. Richard Lavoie

From : "Harvey Wasserman" <onsite@toast.net>

Sivas is on the Black Sea, right? I believe I was there in 1972. It would be interesting to be back. Do you know what the weather is like in March? I agree that the logistics will probably be easier in Turkey than Lybia. This is the one I want to bring the kids to. I am also considering the south coast of Turkey, around Alanya, but found pics taken in February showing beautiful, but overcast skies. Is this normal for this time of year? Would the Black Sea be similar? Perhaps a more inland spot would be better. Hmm....

Can't wait for the Nasa bulletin! Harvey Wasserman

From Gover Schilling

Maps at <http://newton.physics.metu.edu.tr/~aat/TSE2006/TSE2006.html>

From: "Richard Monk" <richard.i.monk@ntlworld.com>

Harvey: I have some detailed pushpin sets for AutoRoute (and some GPS waypoint data) for 2006 on my website <http://homepage.ntlworld.com/rimonk/index.htm> There is also a map if you have not got access to that software. Richard Monk

From : Egan Mark <astrophoto@yahoo.com>

Perhaps this page will suit your needs: <http://newton.physics.metu.edu.tr/~aat/TSE2006/TSE2006.html> Best wishes Mark Egan

From : Sinan Kaan Yerli <sinan@sinan.physics.metu.edu.tr>

Well, Sivas is not "on" the Black Sea coast. It is an inland city.

We (our university's astronomy club) started to collect Feb-Mar-Apr weather conditions for south coast and it looks like it is better than any inland spot. But I tend to be in a "shadow from sea" scene.

Besides, March is wet season for much of Turkey. But for south coast it is more like transient: "hot sun-rain-hot sun" - of course it doesn't always mean that it is a clear sky :).

These are all local experiences. I too wait for a report from satellite data. However, I really wish to be in the south coast. Sinan.

From : Michael Gill <eclipsechaser@yahoo.com>

Harvey, Here are a couple of URLs showing the 2006 eclipse path across Turkey:

<http://eclipse.astroinfo.org/sofi/maps/solecl-2006-03-29-turkey.html>

<http://www.hermit.org/Eclipse/2006-03-29/> Michael Gill

From : Pierre Arpin <parpin@videotron.ca>

Checking on the Georgia map I noticed that mount Elbruz, the highest summit of Europe, at 5642 meters lies almost on centerline.

(Continued on page 19)

SETalk

Any alpinist on the list interested to observe totality from the summit ?

From : Kidinvs@aol.com

Sivas, Turkey..... In March of 1998, I traveled to Turkey to plan for my eclipse tour to see the Aug. 1999 eclipse. I spent about 8 days traveling throughout Northern and Eastern Turkey to pick hotels, tourist sites, and a spot to actually view the eclipse....and I actually visited these areas with the thought in the back of my mind that 8 years later, there would be another eclipse there, so I observed carefully. This is my recollection....

The weather in the areas of Istanbul were cool, damp, rainy, and just plain poor for the week that I was there. It was quite disappointing. Before I paint what may seem like a bad picture, I must say that Turkey is one of the most exotic, beautiful, mystical places that I have ever been to, perhaps only to be surpassed by Egypt in its ability to fascinate. People are wonderful, the food was fabulous, and the better hotels are quite comfortable, especially for the money spent. To the South, I spent time in a fascinating area called Cappadocia, and it was from there that I made a day trip to Sivas to find a spot. The roads that connect the main cities, are 2 or 4 lane blacktop, and auto travel is quite easy. Traveling at 60 mph is not difficult. March is springtime just like the rest of the northern hemisphere, and it is beautiful. Purple wildflowers growing everywhere in the countryside make for a truly peaceful and beautiful landscape. Sivas is a large city, with a lack of tourists, and a subtle distaste

There are mountains that circle the town, so the town itself would not be a good spot to choose to view the eclipse. I think Sivas is on the southern edge of the centerline. There is really nowhere that I saw that was an appropriate area in Sivas to spend the night, and it will be difficult to find more than a handful of locals that will speak English.

Let me save you some time... By all means... go to Turkey, and try to outrun the clouds. If you loose, you will still have a fabulous time. But... bypass Sivas. Eric Brown www.eclipsesafaris.com

From : "Harvey Wasserman" <onsite@toast.net>

Thank you all for the pointers to maps, etc. For some reason I had missed Fred's excellent page, <http://newton.physics.metu.edu.tr/~aat/TSE2006/TSE2006.html> . I agree that no matter what, Turkey will be a fabulous place to visit, having toured through the area in 71/72, I am excited to be going back. My choice of south coast, inland, or black sea will have to be made on the basis of weather, I would suppose. I got clouded out in Austria in '99, and didn't much care for

the experience! I know that the Black Sea coast is quite nice, and swimming was excellent as I recall, but from all I hear the south coast is quite remarkable. >From a landscape/want-to-go sort of decision, this would be my first choice.

BTW - I came across this site that has rather good road maps of Turkey, and links to other sites as well - http://www.adiyamanli.org/MapofTurkey/turk_map.htm .

Govert - Yes, I located Sivas. I passed through it on the way to the Black Sea. Knew it sounded familiar, but don't actually remember it. What Eric says seems to make sense, though.

Eric - What are you planning, or is it still too soon? Harvey Wasserman

From : "Harvey Wasserman" <onsite@toast.net>

My apologies to Tunç Tezel, the actual author of <http://newton.physics.metu.edu.tr/~aat/TSE2006/TSE2006.html>, contrary to my previous post. Harvey Wasserman

From : "Gubbels Guido" <gubgui@innet.be>

Hello, In august 1999 I did observe totality in the region of Sivas. It's a fact that there are not much possibilities to spend the night and indeed the people rarely speak English. The town itself is not the ideal location, but the mountains in the region do offer some magnificent locations to observe an eclipse. This was what we did in 1999, and we got a very good view on the surrounding horizon. Greetings,

From : KCStarguy@aol.com

Harvey, Sorry you got clouded out in 99. We had blinding thunderstorms in the morning of the eclipse and I thought we were cooked. By breakfast a hole in the clouds appears over Hungary and we high tailed it northwest of Lake Balaton where I selected a site where we saw everything in totality with 360 degree view. I knew Hungary was more risky than Black Sea and Turkey but it was a choice for me due to visiting my father's homeland and where he grew up. We were very lucky but I consider this still my best view and memorable total eclipse out of my 7. Besides that finally saw and recorded shadow bands and got to film the incoming shadow which I wanted to do for over 25 years since I was aboard the Canberra and had photographed the darkening and recorded the sounds on taperecorder.

Meanwhile, which total eclipse was best for you and others

(Continued on page 20)

SETalk

and why? My reasons for 1999 are above.

I most likely will opt of one of the many of the cruise options that might be available. but I hope that they don't want to stay for 3 weeks to longer like th cruises are doing for Dec 2002.

From : "Harvey Wasserman" <onsite@toast.net>

I just got permission to post this. Tunc lives in Turkey. His website has been posted by others - <http://newton.physics.metu.edu.tr/~aat/TSE2006/TSE2006.html> . Harvey Wasserman

Original Message From: "Tunc Tezel" <canopia@yahoo.com> To: "Harvey Wasserman" <onsite@toast.net> Sent: Sunday, May 12, 2002 7:44 A Subject: Re: 2006

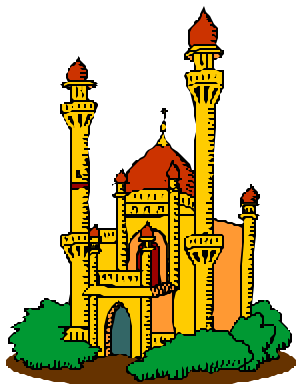
I do not have extwensive information at this time. But investigation from satellite pictures taken since 1991, I can say that the best location would be the sea shore from Antalya city centrum to the east.

There is about 55-60% chance that the weather will be clear or partly cloudy (up to 25% cloud cover) in the last week of March, to the east of Antalya. Western shores may suffer more cloud cover, as the place is open to westerly winds. But the shores of Antalya is expected to fare the best. Overcast cloud cover expectation is about 20%.

In Turkey, especially in the Mediterranean region, it is the change of the season. The weather is very variable. It may be overcast one day, totally clear the next. A very intense rain shower can end and the clouds may retreat in just an hour and a half.

When the rest of Turkey is considered, the probability of good weather decreases when travelled to northeast. But the plains between Konya and Aksaray may be the second best place, with the Tuz Gölü (Salt Lake) centered. The weather near Black sea would be the worst, open to the north-erly moist winds.

I hope this info will be helpful. Good day, Tunç Tezel



Hipparchus on longitude from lunar eclipses

From : John Oliver <oliver@ASTRO.UFL.EDU> To : HASTRO-L@WVNVM.WVNET.EDU Date : Fri, 10 May 2002



A few years ago I got interested in the idea that differential longitudes could be determined by observation of lunar eclipses. Recently I have come across mentions that Hipparchus suggested this idea a few years before me. Can someone point me to a specific reference?

From : John Oliver <oliver@ASTRO.UFL.EDU>

My previous post should have specified that I am asking about finding a difference in terrestrial longitude by observing a lunar eclipse from two locations and comparing local times (the difference is equal to the longitude difference).

From : Dennis Duke <dduke@SCRI.FSU.EDU>

Neugebauer, in HAMA p. 667, says that Strabo, Geogr. I 1, 12 explicitly states that Hipparchus was aware of how to determine terrestrial longitude by comparing the local times of two lunar eclipses.

Toomer, in his Almagest p. 75, fn 3, says that "it seems probable that the only eclipse observed at places widely separated in longitude for which he [Ptolemy] had records of both observations was that of -330 Sep 20 (cf. HAMA. p 668. n. 30), observed at Arbele and Carthage."

From : "Michael L. Gorodetsky" <gorm@HBAR.PHYS.MSU.RU>

Reply-To : "Michael L. Gorodetsky" <gorm@hbar.phys.msu.ru>

About this possibility writes Ptolemy in his Geography.

Ptolemy, Geography, I, 4. J.Lennart Berggren and A.Jones, Ptolemy's Geography, an annotated translation of the theoretical chapters. Princeton Univ. Press, Princeton, 2000. "Most intervals, however, and especially those to the east or west, have been reported in a cruder manner, not because those who undertook the researches were careless, but perhaps because it was not yet understood how useful the more mathematical mode of investigation is, and because no one bothered record more lunar eclipses that were observed simultaneously at different locations (such as the one that was seen at Arbela at the fifth hour and at Carthage at the second hour) from which it would have been clear how many equinoctial time units separated the localities to the east or west."

SETalk

Perigee New Moons

From : "Wil Carton" <wil_carton@hotmail.com> To : <SOLARECLIPSES@AULA.COM> Date : Tue, 14 May 2002

Perigee New Moon friends, Professor George van den Bergh (*1890, +1966) showed in his book "Regelmaat en Wisseling bij Zonsverduisteringen" pages 98, 106-113 (of which book an English version exists, titled "Periodicity and Variation of Solar (and Lunar) Eclipses") a diagram of the lunar orbit, subdivided like a compass "rose", with centigrades (cgr) counting from 0 in perigeum through 200 in apogee to 400 in perigeum (400 cgr = 0 cgr). Near lunar perigeum every central solar eclipse will be total. In the neighbourhood of the perihelium of the Earth, the sector of total eclipse reaches from 0 to 62 and contiguously from 338 to 400 centigrades. If the Earth is farther from perihelium, the sectors of total eclipses are larger. At 140 days before and after perihelium the total sector is equal as large as the annular sector: total from 0 to 92 centigrades and 308 to 400 cgr, annular from 108 to 292 cgr. The missing zones 92-108 and 292-308 cgr are sectors where hybride eclipses can occur.

The opposite: near aphelium of the Earth, the totality sector is 0-96 cgr and contiguously 304-400 cgr, and the annular sector is 113-287 cgr. Again, the small sectors 96-113 and 287-304 is the hybride sector. Wil Carton, Castricum, Holland.

Sarosses with all centrals = total

From : "Wil Carton" <wil_carton@hotmail.com> To : "SE" <SolarEclipses@Aula.com> Date : Tue, 14 May 2002 21:28:38 +0200

Friends, Sarosses where the central eclipses were all total eclipses, are (according to G. van den Bergh's "Saros-Inex Panorama", based on the "Canon der Finsternisse" of Th. von Oppolzer) the numbers: 69, 72, 75, 124, 127.

In these series the number of central eclipses as fraction of the whole serie (centrals plus partials) was relatively low. In other words: the eclipses of these series go/went quicker than moderately from pole to pole. Wil Carton.

Eye Safety at Sunset Eclipses

From : Egan Mark <astrophoto@yahoo.com> To : SOLARECLIPSES@AULA.COM Date : Wed, 15 May 2002

Hey Folks, It's time to announce the June 10 eclipse to my family and friends here in Houston. I tried to get them to go to PV with me but no can do. They'll still get a 50% or so partial from here, which is not all that great, but hey, it's at sunset.

And that presents a bit of a problem. I'm pretty confident in explaining eye safety at eclipses in the middle of the day.....

but what's the best way to explain eye safety at sunset eclipses to the general public? Thanks a bunch. Mark Egan, astrophoto@yahoo.com

P.S. Sorry if I sent this message twice....

P.P.S. BTW..... Sky and Telescope (among other sources) has a map of the entire region where the eclipse will be visible. It will be interesting to see how far east the partial eclipse can be seen.

From : Evan Zucker <ez@AbacusTotality.com>

We had to deal with that here in San Diego before the 4 Jan 92 ring of fire sunset annular eclipse. I simply told people that it's as safe to look at an eclipse at sunset as it is to look at any sunset. That is to say, you shouldn't stare at the sunset for an extended period, but looking at it on and off isn't likely to hurt you. These comments only pertain to the sun within a few minutes of sunset.



SETalk

Of course, weather and atmospheric conditions play a role, and everybody should have a filter, and they should use it so long as they are able to see the sun through it.

This will not be an issue here because our 74% eclipse -- best in the U.S. -- ends a half hour before sunset.

From : FRED ESPENAK <u32fe@lepvax.gsfc.nasa.gov>

I recently launched a new web page dedicated to the June 10 eclipse. It includes new maps of eclipse visibility throughout the USA as well as the world.

The URL of the 2002 Annular Eclipse web page is:

<http://sunearth.gsfc.nasa.gov/eclipse/ASE2002/ASE2002.html>

If you want to go directly to a map showing eclipse visibility throughout the USA, go to:

<http://sunearth.gsfc.nasa.gov/eclipse/ASE2002/ASE2002gif/ASE2002USA-2.GIF>

There are also four lists giving local circumstances for the eclipse from approximately 500 cities. Each city is a link which will display a GIF showing the appearance of the eclipse at maximum from that location. For instance, the GIF file showing the eclipse circumstances for Houston is at: <http://sunearth.gsfc.nasa.gov/eclipse/ASE2002/ASE2002city1/HoustonTX.GIF>

The entire list for eclipse circumstances for US cities is at: <http://sunearth.gsfc.nasa.gov/eclipse/ASE2002/ASE2002city1/ASE2002city1.html>

Please send all comments, corrections or bad links to me at: espenak@gsfc.nasa.gov. Clear skies! Fred Espenak

From : Alejandra León-Castellá <leonale@racsaco.cr>

Wonderful! What detail! Thank you. I just sent the info out to many groups in México, USA and Canada. Eclipses are such wonderful excuses to learn science. See you soon, Alejandra

Information in Spanish on Annular Eclipses in our web page: <http://cientec.or.cr/astronomia/eclipse/index.html>

HYPERVELOCITY WINDS RAGE IN THE SUN'S ATMOSPHERE

Winds of electrified gas rip through the solar atmosphere at nearly the speed of sound there, according to new observations from two NASA spacecraft. The new result shows that the winds and storms of the solar atmosphere - at speeds up to 200,000 miles per hour - so intense that they are more important than gravity in determining the density of the atmosphere.

<http://spaceflightnow.com/news/n0205/16sunwind/>

Eclipses have turned pendulum

From: Alfonso Loen Guillen <aguillen@minhacienda.gov.co> To: <patrick_poitevin@hotmail.com> Sent: Tuesday, October 17, 2000 9:51 PM

Since 1992 I have proposed eclipses have turned pendulum for to measure the speed of gravity. In this moment, I am reading an overview of stories about eclipses phenomena and I understand torsion pendulum began just with the gravity eclipse onset and the highest torsion occurs just moment with sun-moon-earth are just aligned. Please, I need confirm it. If false which are times began torsion pendulum and gravity eclipse onset for least two eclipses. I understand gravity eclipse different. Gravity eclipse occurs when in accord with efemerides sun-moon-earth going ready lined up and optics eclipse when we see it.



SETalk

Eclipse

Eclipse. Chestnut colt, 1764 (Marske-Spilletta by Regulus). Family 12

Eclipse was foaled during the great solar eclipse that occurred in 1764. His exact place of birth is unknown, but likely at the Cranborne Lodge Stud of his breeder, H.R.H. William, the Duke of Cumberland (the third son of England's King George II) in Windsor Park in Berkshire. This is where his sire, Marske, stood at stud, having been swapped for an Arabian by Marske's breeder John Hutton. Eclipse's dam, Spilletta, had been purchased by the Duke from her breeder, Sir Robert Eden.

Cumberland died in 1765 and the dispersal of his bloodstock included the flashy chestnut yearling Eclipse, purchased for 75 guineas by William Wildman, a sheep dealer from Smithfield. Also in that sale was the seven-year-old horse, King Herod, sold to Sir John Moore, a horse who became known better to the world of racing simply as "Herod," and who, along with Eclipse and Matchem, became one of the great triumvirate of early sires. Marske was sold for 20 guineas to a farmer in Dorset but after Eclipse began racing, was rescued from this obscurity by Wildman himself, bought for 1,000 guineas. Eclipse's dam, Spilletta, became the property of the Duke of Ancaster.

Eclipse was allowed to grow, although his temperament caused some thought to be given to gelding him, but hard riding proved to be enough schooling. He did not start until he was fully mature at the age of five, after some frightening "secret" works, on May 3, 1769, winning a plate valued at 50 pounds at Epsom in straight four-mile heats. Supposedly, prior to the second heat, a betting man named Dennis O'Kelly attempted to predict the finish of the race, announcing his bet "Eclipse first, the rest nowhere." Eclipse distanced all his competitors, and O'Kelly bought half of Eclipse for 650 guineas.

The rest of the year was a procession for the high strung chestnut. His next two races included a two-mile heats at Ascot at the end of May, a King's Plate at Winchester (4 mile heats), then he garnered two more victories through the a lack of willing competition, resulting in walk overs for a City Plate at Winchester and a King's Plate at Salisbury. He won the City Free Plate at Salisbury (4 mile heats), then three more King's Plates, at Canterbury (a walk over), Lewes, and Lichtfield. He ended the season with nine wins in as many races.

The following year, he remained undefeated and untouchable, and as early as April of that year, O'Kelly bought out



Wildman's remaining half interest for 1,100 guineas. Eclipse started with a victory in a match race against Bucephalus at Newmarket over the Beacon Course, and followed by taking the Newmarket King's Plate (4 mile heats). He took the King's Plate at Guildford via a walk over, another walk over in a King's Plate at Nottingham and again at York. He then won the Great Subscription at York, run in a single four mile "dash," followed by another King's Plate at Lincoln. Moving on to the Newmarket meeting, he won two races in two days, including the King's Plate in a walk over. In the end, there was no more reason to race him, having proven that he was superior to everything else in training by a wide margin, never having been seriously challenged. He won all 18 of his starts, and was declared the greatest runner the turf had seen since Flying Childers (a full brother to Eclipse's own great-grand sire Bartlett's Childers, sire of Squirt, sire of Marske.)

Eclipse retired to stud in 1771 at O'Kelly's Clay Hill Stud, near Epsom (Surrey), initially standing for a fee of 50 guineas. In 1788, he was relocated to Cannons Stud, Edgware (Middlesex). Still the property of Dennis O'Kelly, Eclipse died there as a result of colic on February 26, 1789, at the age of 24. His skeleton is now on display in the Jockey Club Museum in Newmarket. Several of his hooves (which apparently numbered at least five) were made into inkstands, a popular tribute at the time. One was crafted in gold, prepared as a goblet and given to the King of England. Hairs from his tail were further woven into the tassel of "The Whip, supposedly Charles II's whip, and the prize of victory in the self-named race, which must be contested for via a challenge.

Eclipse became one of the leading sires of his era, although

(Continued on page 24)

SETalk

the list was actually dominated by Herod and his son Highflyer for many years. His progeny were described as "light fleshed and easily trained." In all, Eclipse sired 344 winners, including the Derby winners Young Eclipse, Saltram, Volunteer, and Sergeant, as well as the important runners and sires Pot-8-os, King Fergus, Mercury, Joe Andrews, Dungannon, Alexander, Don Quixote, and Pegasus. The lines of Pot-8-os and King Fergus survive to this day. In fact, it's estimated that among all living Thoroughbreds, at least 95% can trace their direct tail-male line back to Eclipse.

Only one of his daughters was a classic winner, Annette, winner of the Oaks of 1787, but his daughters proved outstanding broodmares, especially crossed with Herod and Highflyer, producing Phenomenon, Haphazard, Chanticleer, Weasel, Skyscraper, Tartar, Stamford, Archduke, John Bull, Meteora, and Remembrancer.

Eclipse was a bright chestnut with a narrow blaze running down the length of his face ending between his nostrils. His right hind leg was also white almost up to his hock. Eclipse was a big horse, but tremendously strong, sound and fast. He was never lauded for his looks and sometimes criticized for having a large, unattractive head. His difficult temperament was well known and he carried high weights successfully in most of his races. Upon his death, his body was submitted for serious medical scrutiny. His height was just over 16 hands, by half an inch, but he was notably an inch higher at the rump than at the withers. His heart was said to be inordinately large. --Anne Peters

Dragon Eclipse connection

Raoul Martens <raoul@MARTENS.PP.SE>

An Egyptian picture from c. 1000 BC shows the Sun-barge pulled by jackals and snakes and Seth fighting with the serpent Apopis. The jackal was a common Egyptian symbol for the "eclipse-evils".

From : Marilyn Lawrence <pronoia@NNI.COM> To : HASTRO-L@WVNM.WVNET.EDU Date : Tue, 7 May 2002 22:24:08 -0400

David Livingstone wrote: "Baal seems to represent some type of relationship with the constellation Draco, which circles the north pole, with which Leviathan, the "coiling serpent", was identified, and whose head is stepped, or "vanquished" by Hercules, or Bel."

The earliest dragon/serpent iconography occurs in Mesopotamia c 3000 BC, where it symbolized the eclipse year with the lunar nodes at the dragon/serpent's head and tail.

(Willy Hartner: The Pseudoplanetary Nodes in the Moon's Orbit in Hindu and Islamic Iconographies, Ars Islamica, Vol 5 Pt 2, Ann Arbor 1938)

This is a really good point (though I was under the impression that such an early dating for the dragon/eclipse connection is not firmly established).

On the ascending and descending Nodes, Roger Beck's article on the Ponzo zodiac is well worth checking out. This out-of-print article from the Journal of Mithraic Studies is available on the web at <http://www2.uhu.es/ejms/> but at the heavy price of a cumbersome download. Beck argues that the serpent/dragon represented in the ceiling of the Ponzo Mithraeum is not Draco as some think (it's position relative to the bears and zodiac incorrect for it to be Draco) but the earliest representation of the eclipsing Dragon, which is called in stray Greek astrological texts the "Chaldean Dragon".

However, mention of the bull-faced Pole Lords (polokrates tou ouranou) in the so-called Mithraic Liturgy in the Greek Magical Papyri (PGM IV 475-829) does indicate some type of cosmocratorship through control of the rotation of the heaven via the poles. Marilyn

From : Joanne Conman <joanneco@MAINE.RR.COM>

What is your source for this picture? The jackal is not a common Egyptian symbol for the "eclipse-evils." Eclipses are not known to have been mentioned in Egypt until quite late, so they have no common symbols. Joanne Conman

From : Raoul Martens <raoul@MARTENS.PP.SE>

> On 7 May 2002, Raoul Martens wrote: The earliest dragon/serpent iconography occurs in Mesopotamia c 3000 BC, where it symbolized the eclipse year with the lunar nodes at the dragon/serpent's head and tail. (Willy Hartner: The Pseudoplanetary Nodes in the Moon's Orbit in Hindu and Islamic Iconographies, Ars Islamica, Vol 5 Pt 2, Ann Arbor 1938)

> Gary Thompson wrote: Hi Raoul, Where in the article is the above statement specifically made? Regards, Gary Thompson

Reply: Hartner's statements (article in question as re-printed in Oriens-Occidens, 1968) are the following: "The nodes of the moon's orbit are simply identified with the eclipse monster itself: with the Hindus, Rahu becomes the ascending, Ketu the descending node; with the Persians and Arabs, the head and tail of the Djawzahr play the

(Continued on page 25)

SETalk

same role." (p. 357) 1968 Hartner wrote on the same subject: "Il ne parait que logique d'identifier les noeuds avec les deux parties du monstre cause des eclipses, et c'est ainsi que nous rencontrons Rahu comme symbole du noeud ascendant et Ketu du noeud descendant." (Oriens-Occidens, 1968; Le probleme de la planete Kaid p. 270)

Hartner also noted a possibility of etymology for the dragon Djawzahr to be "bullhorned" from a Persian word for "cow, ox". "Such monsters appear in an early period - I refer the reader to the various types of horned serpents or dragons on the Babylonian kudurrus or the horned quadrupeds on prehistoric painted pottery.....frequently accompanied by other lunar symbols, or the horned serpents found on Susian seals." (p. 358) Thus, dragons/serpents were eclipse symbols in prehistoric times.

The earliest idea of the eclipse year is the 346 bull-heads surrounding the temple at Saqqarat, Egypt from about 3000 BC. There is evidence - orientations of graves - that the moon's 18.6 year cycle between its "major standstills" was known in all of North-Western Europe at about the same point in time. The Aubrey Circle in Stonehenge from c. 3000 BC testifies to knowledge of both the existence and regression of the nodes. Since the Aubrey Holes are 56 and the circumference of the Circle measures c. 272m = 440 fms of 0.618m, the eclipse year is evidenced by the 3-term proportion (Greek "Logos"):
 $346.6/440 = 440/560 = 0.786 = \text{the square root of } 0.618 \text{ i.e. the Golden Section's "major", a number of paramount importance in the geometry and measures of the Cheops pyramid, the inclination angle of which is } 51.8^\circ, \text{ cosine } 0.618.$

The prehistoric dragon/serpent iconography shows that the constellations Draco and Hydra must be just as old. A sign of the great interest in that symbolism is that Allen (Star Names) reports confusion about names, locations and symbolic significance of their various stars; Allen dismissed claims by Persian astronomer Firuzabadi that the stars Ras al Tinnin and Dhanab al Tinnin were the Dragon's head and tail: "reference being there made solely to the ascending and descending nodes in the orbits of the moon and planets known to Arabian astronomers under these titles." Acc. to Allen, these ideas instead referred to Hydra, having been confused with Draco.

Since Allen wrote this more than 100 years ago, information has been gathered on megalithic astronomy showing that the nature of the nodes and their movement along the Moon's orbit were known and had nothing to do with whatever constellation. Thus, ideas like those mentioned were only mythological.

One way of realizing the mythic importance of Draco is to view this constellation by means of some computer program as f.i. Skyglobe v.3.6. After input of the following parameters: Baghdad, midnight, March 21 3000 BC, North, Polaris and the rest of Ursa Minor are seen near the horizon, up and along the meridian. Draco is then surrounding Ursa Minor except for in the West. By activating the constellation boundary lines, stars East of the West boundary of the constellation can be identified. One then sees that the East/South boundary lies a few degrees more towards South than the West/South boundary, which, from some point of view of symmetry, could comprise Polaris. The distance from Polaris to the closest bright star of Draco, Epsilon, is about 19 degrees. If Polaris would be inside the West/South boundary, Draco encircles Ursa Minor in a form similar to a horse-shoe. The "gap" of c. 19 degrees corresponds approximately to the difference between the solar year and the eclipse year being about 19 days. The conclusion would therefore be that Draco symbolized the eclipse year in about the same way as Hydra symbolized the draconitic month acc. to Allen. Sincerely, Raoul Martens

From : Raoul Martens <raoul@MARTENS.PP.SE>

> Raoul Martens <raoul@MARTENS.PP.SE>wrote: An Egyptian picture from c. 1000 BC shows the Sun-barge pulled by jackals and snakes and Seth fighting with the serpent Apopis. The jackal was a common Egyptian symbol for the "eclipse-evils".

> Joanne Conman wrote: What is your source for this picture? The jackal is not a common Egyptian symbol for the "eclipse-evils." Eclipses are not known to have been mentioned in Egypt until quite late, so they have no common symbols.

Reply: The picture in question is in the Papyrus of Hirweben, 21st Dynasty, Cairo, Egyptian Museum. Seth, animal-headed with long ears, fights from the ship's bow with a spear a big serpent, the 11 coils of which are seen below the ship.. 11

(Continued on page 26)

SETalk

likely refers to 11 years, a sometime ec- lipse period = $1/3$ of the 33 year eclipse cycle Maya, as shown in professor. G. van den Bergh's "Large Inex Schedule of Oppolzer's 5200 lunar eclipses". The number 11 is fundamental in the Cheops pyramid, the side of which is 440 cubits, a number = the 440 draco- nitic months of the Maya, known in antiquity, acc.to van den Bergh. . 440 is also indicative of knowledge of the eclipse year, 346,6 days, because of the relation $346,6/440 = 0.787$, the side-relation of the the right triangle = $\frac{1}{2}$ the pyramid's crosssection and = the square root of the Golden Section's $0.618 = \cosine$ for the pyramid's angle of inclination 51.8 dgs However, the eclipse year also appears in the 346 bullheads surrounding the hugh, presumably royal, gravetemple at Saqqarat, dated to the 1st Dynasty between 3200-2800 BC.

The alleged absence of literary evidence of eclipses in Egypt could be due to that such knowledge was esoteric within the elite because of the trick to use an eclipse as excuse for a removal of the Ruler, something that occurred in Babylonia, as reported in its literature.

Jane Sellers in "The Death of Kings in Ancient Egypt" mentions the Sed-festival held in Pharaoh's 30th year of government if no eclipse had intervened, where banners with jackal/dogheads were carried. But under Pharaoh Seti I, that festival was held during his 18th year of reign, rather clearly indicating the 18-year Saros eclipse cycle. The god Anubis, who weighed the hearts of the deceased was also jackal/dog-headed as was the god Wepwawet who led the deceased in the Underworld. Thus the dog/jackal-head symbolized Death. Both in Hindu and European mythologies the eclipses were caused by a wolf, in China, however, by a dog. Acc. to Allen: Star Names, Sirius, the "Dog-star", was also called "Sed"; the reason for the Dog- name appears from the fact that 4000 BC Sirius rose and set in 123 resp:y 237 dgs i.e. close to the moon's rising resp:y setting azimuths at its "major standstill", near which eclipses always occur (as explained in my recent e-mail to this List conc. the dragon/serpent mythologies).

Allen says re Sirius: "It is the only star known to us with absolute certitude in the Egyptian records - its hieroglyph, a dog, often appearing on the monuments and temple walls throughout the Nile country" The latter refers to Sirius' most important other role as a calendric star, however, not relevant for eclipse-occurrence.

Allen continues: "In early astrology and poetry there is no end to the evil influences that were attributed to Sirius. Homer wrote, in Lord Derby's translation:

The brightest he, but sign to mortal man
Of evil augury."

There is little doubt that Homer referred to eclipses here and that this concept was brought to Greece from Egypt very early. Sincerely, Raoul Martens

From : David Livingstone <dlivingstone@NETIDEA.COM>



Raoul Martens wrote: "Hartner also noted a possibility of etymology for the dragon Djawzahr to be "bullhorned" from a Persian word for "cow, ox". "Such monsters appear in an early period - I refer the reader to the various types of horned serpents or dragons on the Babylonian kudurrus or the horned quadrupeds on prehistoric painted pottery.....frequently accompanied by other lunar symbols, or the horned serpents found on Susian seals." (p. 358) Thus, dragons/serpents were eclipse symbols in prehistoric times."

I was unaware of this connection, but I had noticed in Herodotus:

"in the neighborhood of Thebes, there are sacred serpents, not at all hurtful to men: they are diminutive in size, and carry two horns that grow on the top of the head. When these serpents die, they bury them in the temple of Jupiter; for they say they are sacred to that god." (Histories, II - 74)

The "hero", by whatever name, dying god, or some such, kills the Dragon (Baal/Lotan, Marduk/Tiamat, Hercules/Hydra, Zeus/Typhon), but there also seems to be some association with the killing of a bull, as in Gilgamesh, Hercules, Mithras,

(Continued on page 27)

SETalk

the Vedic Mitra slays the Soma/Bull, and so on. On the end of the fifth day of the Akitu festival at Babylon, the king and the high priest sacrificed a white bull while chanting, "Divine Bull, splendid light that illuminates the darkness." Likewise, according to Thorkild Jacobsen, Tammuz' death was lamented as that of a death of a bull.

According to Clement of Alexandria, in Exhortation to the Greeks, a common expression of the Dionysiacs was "the bull is father of the serpent, and the serpent father of the bull." This may have had some astrological significance, and if the "hero" can in any possible way be identified with Orion as "Kosmokrater", what then is the meaning of the slaying of the Dragon or of the Bull? Regards, David Livingstone

From : Gary Thompson <gtosiris@MPX.COM.AU>

Hi Raoul. You made a typo - it's page 377. Regards, Gary Thompson

From : Raoul Martens <raoul@MARTENS.PP.SE>



A propos the discussion about ancient eclipse iconography, it may be of interest to note that still in the 1700th century, the serpent remained as an eclipse symbol. Attached GIF-image is from Athanasius Kircher: *Ars Magna Lucis et Umbrae*, Amsterdam 1671 p. 410. The numbers 45-50 above the coils refer to the years 1645 - 1650. The large circles with "rays" mark solar eclipses, the small lunar eclipses. As Kircher held a post as Papal Mathematician 1633-41 the eclipses marked can be assumed to have been seen in Rome. Only one eclipse is not verifiable at Rome's coordinates: the lunar eclipse under 46 marked "10 Feb" (to the left). Sincerely, Raoul Martens

From : Gary Thompson <gtosiris@MPX.COM.AU>

Hi Raoul, I find nothing convincing in Hartner's speculations concerning possible early Mesopotamian evidence. Your interpretation of Hartner's speculations, and his reliance on a statement by the Jesuit astronomer Bouche-Leclercq in his "L'Astrologie Grecque" (1899), as suitably establishing Mesopotamian eclipse iconography circa 3000 BCE would not seem justified. Also, keep in mind that Allen wrote at a time when it was generally believed (without suitable evidence) that most of the constellations of the Greek sky were originated circa 4000-3000 BCE. Regards, Gary Thompson

From : Lester Ness <lesterness@HOTMAIL.COM>

Bouche'-Leclercq a Jesuit? Can you tell me more? I'm in the midst of translating "L'Astrologie Grecque" and he appears to be quite anti-religious, to say the least. Lester Ness

From : Gary Thompson <gtosiris@MPX.COM.AU>

Hi Lester, What I can tell you is I made a slip. (I have Jesuit astronomers on the brain at present.) As far as I am aware Auguste Bouché-Leclercq (1842-1923), was Professor für Literatur, Historiker, at Universitäten Montpellier und Paris. I have no further details. I have seen one reference state he was a Jesuit but presently I would not know if he was or not. (He was indeed openly sarcastic regarding astrological beliefs.) Some other person on the HASTRO-L list would surely know further details about him. Apologies for my earlier error. I hope this correction is of some assistance. Regards, Gary Thompson

From : Lester Ness <lesterness@HOTMAIL.COM>

Dear Gary, that's alright. I was sort of hoping you would have access to biographical info that I hadn't seen. He does have an entry in (I believe) *Biographie generale*, but it's rather short. I remember reading he attended a minor seminary for a while as a child, but I also remember he was married and had children. Perhaps disillusioned at some point? His footnotes strike me as hostile towards any kind of religion, but at the same time well-informed. Lester

From : Raoul Martens <raoul@MARTENS.PP.SE>

The original statements appear to contain the following three errors: 1. The renowned Hartner did not "speculate", but ex-

SETalk

trapolated justifiably from a vast evidence, likely better known by him than by anybody else. The eclipse year and the nodes being known ca 3000 BC in Stonehenge and in Egypt imply that they were known also in Babylonia at that time

2. Bouche-Leclercq was neither an astronomer nor a Jesuit but historian. His work on Greek astrology is acclaimed since 100 years. The acknowledged "slip" thus seems to indicate prejudice - an objectionable stance. There were several Jesuit scholars in the past who successfully deciphered Babylonian astronomical records like f.i. Epping, Strassmaier and Kugler.

3. Re. the age of the constellations, Hartner wrote as follows: "it is possible to establish a continuity of tradition that can be traced back even further than to Sumer: it had its origin about or even before 4000 B.C. with the prehistoric settlers of Persia, Elam and Mesopotamia, and it was taken over by the Sumerians and Akkadians, from where it eventually passed over to the Greeks." (The earliest history of the constellations in the Near East and the motif of the lion-bull combat, Journal of Near Eastern Studies, Vol. XXIV, 1965, reprinted in Oriens-Occidens, 1968). Similar views were not opposed during the List discussion not long ago

Hartner also brilliantly deciphered (perhaps with a minor error) the runic script and cryptic iconography on the famous Gold Horns from Gallehus, Denmark as referring to total eclipses in 411 and 412 A.D. (Hartner, Willy: Die Goldhörner von Gallehus; Wiesbaden 1969). A noted reviewer of the book thus wrote: "We cannot overestimate the importance of Hartner's discovery that the dragonsymbolism reveals the Edda to be closely connected not only with iconographic characteristics of the Horns but also with literary evidence found in Greece, as well as India's eclipsemythos of Rahu and Ketu and in Islam. It therefore seems that it now has become possible to illuminate and uniformly explain the whole complex of the End-of-the-World concepts of the Edda - a field in which there have been very many speculations in the past." (Arthur Beer: Hartner and the Riddle of the Golden Horns, Journal for the History of Astronomy 1 (2), 1970). Sincerely Raoul Martens

P.S Would it be possible to identify the author of the book mentioned below, found in the National Library of Australia?
<http://webpac.nla.gov.au/>

Full Bib Display

AMICUS NO: 1643254

AUTHOR: Thompson, Gary D.

TITLE: The wealth of the Vatican /by Gary D. Thompson.

PUBLISHER: [Lidcombe North, N.S.W.] : [Atheist Society of Australia], 1976.

DESCRIPT'N: 9p. ; 26cm.

ISBN: 0959712526 :

NOTE(S):

1) Vatican. Wealth (ANB/PRECIS SIN 0099228)

2) Cover title.

3) Processed.

4) Available from The Secretary, Atheist Society of Australia,

P.O. Box 17, Lidcombe North, N.S.W. 2141.

5) Bibliography: p.9.

SUBJECT: Catholic Church -- Finance.

ORGANIS'N: Atheist Society of Australia.

ABNRID:000001643254

From : Joanne Conman <joanneco@MAINE.RR.COM>

The eclipse year and the nodes being known ca 3000 BC in Stonehenge and in Egypt imply that they were known also in Babylonia at that time ++++There is no evidence that the nodes were known in Egypt in 3000 BCE (or 2000 or 1000, etc.). Sincerely, Joanne Conman

From : Nicholas Campion <ncampion@CAOL.DEMON.CO.UK>



SETalk

With reference to Hartner's Lion-Bull = Leo-Taurus thesis, which Raoul Martens just raised again.

When I read Hartner's paper this animal-constellation connection seemed pretty convincing to me.

However, I just saw a collection of Sumerian cylinder seals for the first time in years - for the first time since I read the paper, at least - at the J.P. Morgan library in New York.

It is immediately obvious that Hartner has selected one image from many, and that unless anyone can show convincingly that at least some other animals in the seals relate to constellations, Hartner's work is deeply flawed.

This doesn't mean that huge and significant constellations such as Leo and Taurus weren't recognised much earlier (cf the bulls in the Lascaux caves), but that Hartner's work in itself is not convincing evidence. Nick Campion

From : Gary Thompson <gtosiris@MPX.COM.AU>

Hi Raoul, Thanks for identifying that one of my articles is listed in the catalogue of the National Library of Australia. If 9 pages is a book then I have, to date, authored several hundred. (Is my book "A Guide to Respirator Use in Industry" listed also? It contains some 220 pages.) If you go to my web site then its rather easy to identify the direction of my personal beliefs as I make mention of my extensive library on freethought and skepticism. It's all really a "no-brainer." By the way I am currently doing work for Jesuit Social Services at 40 percent of my usual fee, but then I guess that's prejudice for you.

Regarding who was A. B-L. Lester Ness ignored the astronomer descriptor and asked for more information regarding my other initial descriptor of A. B-L as a Jesuit. Hardly an objection. Why didn't I make an earlier correction? Simply because I'm not fascinated to read my own postings returned from HASTRO-L. Doesn't it seem surprising that I could readily answer who A. B-L really was without confusion?

I think that perhaps your Sherlock Holmes approach to truth through deductive reasoning has definite limits. Could you please instead produce some reasonable evidence for your speculations and inferences?

Regarding:

(1) Hartner *did* speculate from very limited evidentiary sources. And no he didn't necessarily know the Mesopotamian "evidence" better than Assyriologists. In fact I do not know of any Assyriologist or any art historian who supports his views on early Mesopotamian constellations. Many Assyriologists are certainly comfortably at home here with the materials. Or do you think that Mesopotamian scholarship is going backwards as time goes on? Certainly Hartner's speculation of an early Ibex constellation remains undemonstrated. Personally don't believe you have produced any evidence to support your claims that the eclipse year and the nodes were known at Stonehenge and in Egypt circa 3000 BCE. The absence of suitable standards of evidence can hardly rationally lead us to infer that both were known in Mesopotamia at the same time.

(2) I'm days ahead of you in identifying A. B-L as a historian so I really can't see your point here. You fail to acknowledge that I correctly identified such. For myself I would not see this oversight on your part as seeming to indicate prejudice. A. B-L's book on the history of the techniques of Greek astrology is very much out of date regarding the early chapter on Mesopotamian astronomy. I am quite familiar with Strassmaier, Epping and Kugler. My collection of notes, articles, etc. regarding them currently fills 12 binders. I also have most of their books. (One of the reasons why I currently have Jesuit astronomers on the brain.) Also, I have just completed posting Kugler's two-part article on Gilgamesh at my web site. It was perhaps one of his earliest essays flirting with some of the ideas of Panbabylonism (which he later solidly rejected).

(3) Regardless of what Hartner wrote regarding his own ideas of the earliest constellations his views remain unsupported by suitably established evidence. Don't simply quote him - refer to suitably established standards of evidence.

(Continued on page 30)

SETalk

Recent absence of opposition on HASTRO-L to Hartner's constellation views is hardly to be construed as support - let alone some type of evidence in itself. If you look at the history of HASTRO-L posting then you will find that Hartner's views have been opposed. Surely everything does not have to be repeated?

(4) Regarding Hartner's book *Die Goldhörner von Gallehus*. It's an excellent book. It doesn't offer support for your above-mentioned assertions regarding Egypt, Stonehenge, or Mesopotamia. Regards, Gary Thompson

From : Raoul Martens <raoul@MARTENS.PP.SE>

Reply: What constitutes "evidence" in matters of ancient astronomy? As in Egypt astronomical knowledge apparently was esoteric, architecture rendering essential astronomical knowledge geometrically was used as a means of its preservation for ever.

Plato saw that when writing: "But whatever has been transacted either by us, or by you, or in any other place, beautiful or great, or containing anything uncommon, of which we have heard the report, every thing of this kind is to be found described in our temples, and preserved to this day." (TIMAIOS: Taylor's translation 1804):

The draconic month of 27.212 days is the period of the moon's movement from one node to the other and also the mean interval between two monthly declination maxima. However, declination was unknown to the ancients. But the sidereal month of 27.321 days was easily observed. Being close to the draconic month it may have helped locating the nodes. Thus, counting the known c. 27 days of the sidereal month would have been the way to find the moon's next node. Since the ratio of 27.212 to the eclipse year number 346.62 equals $0.0785 = 1/10$ the ratio of 346.62 to 440 = the square root of the Golden Section's 0.618 all are inherent in the Cheops pyramid parameters; see previous e.mail

Since the eclipse year runs between the node-passages of the sun, knowledge of that period logically implies knowledge of the nodes. One counted the number of days between an lunar eclipse and the next and found that lunar eclipses often occur in intervals of c. 173 days at full moon, seeing also that the sun and moon, just before or after an eclipse, were in opposite positions when rising or setting.

The eclipse cycle Saros of 18 years + 11.3 days, known early in Babylonia and Egypt was found probably because it corresponds exactly to 19 eclipse years and 242 (2×11^2) draconic months. And $19/242 = 0.0785 = 1/10$ of $346.6/440$ as previously said. The Saros thus implies knowledge of both the eclipse year and the draconic month inevitably implying knowledge of the nodes simply because during 18 years the nodes have moved 324 dgs. The Aubrey Circle in Stonehenge from c 3000 BC undoubtedly served the purpose to identify the changing position of the nodes in order to predict eclipses and find out assumed eclipse-cycles. Thus Hoyle thought that Hecataeus' "19 year festival" in what has been interpreted as Stonehenge, applied to the 19 eclipse years. At these festivals Apollo, the god of light, returned and "danced the whole night through from the vernal equinox to the rising of the Pleiades" (suggesting that the absence of a Saros solar eclipse at some previous, however untold, point in time, was celebrated).

The mathematics of the Aubrey Circle is the same as the one appearing in the geometry of the c.500 years later Cheops pyramid. So, the geometry of that very pyramid proves that its architect knew the eclipse year, the draconic month and the lunar nodes. ..

However, this case also gives a further proof of the fundamental importance of the Golden Section in Egyptian culture and science. Reference is made to R.A. Schwaller de Lubics: *Les bases de la mathematique pharaonique, Le Temple de l'homme*, Paris 1957. Sincerely, Raoul Martens

From : Joanne Conman <joanneco@MAINE.RR.COM>

>What constitutes "evidence" in matters of ancient astronomy?

This is a loaded question. My answer is limited to ancient Egypt since that was the context of what I wrote originally; however, IMO, astronomy has only been around for a few centuries.

